

Field Book
of
Willis Linn Jepson

- June, 1931. -

If lost finder please return
to W.L. Jepson, Department of
Botany, University of California,
Berkeley, California,
and Receive Reward.

Berkeley to Mohave Desert.

1

Left Berkeley at 6⁰⁰ am.
Sunday, May 31. Miss Mary
Beal had written from
Barstow that the region
between Halloran Spr. and
Cima had received 2 or
3 inches of rain and was
now flowering. So it seemed
best to go and see the
far eastern Mohave Desert
in early June.

Drove down* the west
side* of the San Joaquin Val-
ley to Mendota, and thence
across the valley to Fresno, thence
to Tehachapi and Mohave sta.
East to near Arango sta.
where the first ^{considerable} collecting
was done. See nos. 15,765
et seq.

* really "up." | ** See p. 29

2

Amargo (5 mi. w. of), Mohave Desert

Kern Co.

ca. 4 mi. w.

c. 2400 ft.

No. 15,767. *Yucca whipplei* Torr.
In full bloom near Cameron sta.

No. 15,768. *Eriogonum baileyi* S. Wats.
var. *brachyanthem* (Cov.) Jeps. &

No. 15,769. *Oxytheca Chorizanthe*
perfoliata Gray

No. 15,770. *Lesingia Lemmonii* Gray.
det. R.C.B. June 4, '63 Yellow-flwd Composite.

No. 15,771. *Eriogonum gracillimum*.

No. 15,772. *Oxytheca*
Eriogonum

Cameron

No. 15,773. *Eriastrum*
Bongelia eremica Jepson.
Blue-flwd fls.

No. 15,774. *Nicotletia*
Rays pinkish.

No. 15,775. *Oenothera decorticans*
H. & A.

No. 15,776. *Langloisia matthewsii*
Greene.

No. 15,777. *Salvia laticata* L. var. *tenuifolia*
Very fleshy.

May 31, 1931.

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No. 15,778. *Abronia*
See * on p. 6. Perianth white or ^{light} lavender.
Stems ascending!! not prostrate.

No. 15,779. *Lupinus odoratus* Hal.
It has no odor, at least
none ordinarily discernible, not
nearly as much as *Lupinus*
microcarpus; perhaps the original
specimens took their odor from
some other desert plant with
which they were collected.

No. 15,780. *Eriogonum*
viridescens Heller

No. 15,781. *Stephanomeria exigua*
Ligules white.

No. 15,782. *Eriogonum deflexum*

No. 15,783. *Langloisia matthewsii*
Greene.

No. 15,784. *Eriogonum deflexum*

No. 15,785. *Eriogonum pusillum*
T. & G.

- Camped tonight, Sunday, on the desert between Mohave and Kramer, ^{some 5 mi. w. of Amargo sta.} the wide plain giving a fine view of the distant mountain ranges: the San Gabriel range to the south ending eastward in Mt. San Antonio with snow on its north slopes. The three great peaks of Tehachapi, standing fine, massive and dominating on the way whence we have come.

This camp is not far west of Amargo railroad sta. There is a lot of the subsect or ascending *Abronia* (no. 15,778) with white or with lavender flowers. The outer perianths of the flat cluster are "bilabiate" irregular: the lobes on the outer side are more deeply lobed.

than those on the inside, the 3 outer being markedly of one set, the 2 inner of another: M, outer, inner, m. This differentiation is similar to that which occurs in Compositae, and in the flat-topped clusters of Umbelliferae.

No. 15,786. *Eriogonum mohavense*

Amargo

No. 15,787. *Eriogonum baileyi* Wats.
var. *brachyanthum* (Cov.) Jeps. Amargo

No. 15,788. *Palafoxia linearis* Lag.

Crowsey Valley.

No. 15,789. *Euphorbia polycarpa* Bth.

var. *hirtella* Boiss. Soda Lake.

- Monday, June 1, we run on to Casslow, to Yermo, to Crowsey Valley, Soda Lake Basin and Hallock Spring.

In this region one finds plants that come over into eastern California from the Great Basin, range into the state a few miles and then stop. One such is ~~*Polygala acanthoclada* Gray~~ ^{*Menodora spinescens* Gray}. I measure one bush of it. It is a low broad rounded mound that has a denser weave as to its whole body above ground than any other plant in California I think. ^{woody} This particular mound measures $5\frac{1}{2}$ feet broad and 13 inches high. The stems, the branchlets are not only diversely branched but very numerous. See no. 15805.

The colors on the mountain range give the landscape its meaning and spell in good part. We stopped today on the down grade into

Soda Lake basin and view the great valley level and the very diverse and jagged ranges that closed it in.

This is now a good time for *Eriogonum* in the desert. At the first night's camp between Mohave and Kramer several species were taken in flower, one not taken being *Eriogonum inflatum* just coming into flower. One of the party remarked the spot as an *Eriogonum* paradise. The whole desert is at this time about Holloran Spr.

a "haul" is made of this genus and beyond Holloran and Yucca grow st., some more are found.

We see a few clumps of *Baileya* no. 15,803. It is a fine plant. 20 in. high, with 50 to 70 ascending stems from the base, when at its best.

— we go down into the Soda Lake Valley and cross it, and take the long grade, some 12 or 15 miles up to Haloran Sprs., a perfectly straight road ascending over the tilted mesa; climb on beyond to Yucca Grove road sta., next Summit road sta., then in half-a-mile we camp (see top ?), next morning going on to Windmill sta., a mile beyond turning southerly over a good dirt road that runs to Cina. To our left is the Ivanpah Range; the great broad valley lying west of it being filled with a great Yucca ^{brunifolia} forest, of which we now begin to get some increasing idea as we go on. It stretches away to the west over the ascending slopes as far as Haloran Sprs. As we go on we are ascending imperceptibly but steadily until we finally halt on

a summit between two peaks (Kessler Peak and Tentonia Peak) and photograph *Juniperus utahensis*, ^{16 ft. h.} and the Yucca *brunifolia* forest, which passes ^{10 to 26 ft. h.} over the summit and extends down into the Cina region. On the downward slope, for miles, the Yuccas are denser than I have ever seen them elsewhere — as you look through the forest it becomes a closed one — the trees forming a solid mass. In other places one always sees opening between the trees — there is a further back ground. Trees 10 to 26 ft. h. About Cina is good batanizing, though it is late for the best. *Eriogonum* no. 15,850 is extremely abundant, forming yellowish green sheets on the flats. *Baileya* occurs in a few clumps, while *Lupinus pilosellus* is noticed in a dozen individuals — but more could be found. *Asclepias* (no. 15,843)

is frequent.

We return, up grade, to the summit of the road by Kessler Spr. and then take the long down grade to the main highway at Windmill road sta. On the way back to Baker sta., we stop and collect Stanleya ^{no. 15,816,} and a fine plant of *Allionia* (no. 15,817). It is remarkable how seldom one sees this species. At Baker we turn north a mile and camp ^{over night} in the flat dry lake bed, ^{its sandy floor} covered almost exclusively with *Atriplex*. The wind which is blowing disagreeably strong on the sandy waste goes down after sunset and the night is quiet. After several lingering looks at the great mountain ranges

Lying around this great valley, we turn over the mountains and go down into Cronese Valley, its floor dotted with *Prosopis juliflora* var. *glandulosa*. One tree I measure roughly, 94 feet crown ^{diameter} on the ground, 28 feet high. A fine lofty sharply defined peak dominates Cronese Valley on the southwest side.

— *Gilia* (*Hedleya*) ^{*eremica* Jepson} (no. 15,848) is frequent on the floor of the valley at Cina. I describe its bilabiate corolla as follows: 4 lobes in upper lip, the 2 upper forming a pair marked in a purple pattern alike, the 2 lateral forming a pair marked alike, the lower "lip" thus consisting of a single lobe not marked. Sometimes this lower lobe capsizes one of the lateral lobes for a partner and colors it like itself. There are then two.

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lobes in the lower lip and 3 in the upper, the 3 upper being marked alike. Sometimes the 2 lobes of the lower lip are slightly marked alike, that is purple markings on a pale blue ground. The corolla is pale blue or whitish, the markings referred to being light purple.

The eryogonaceae plant, no. 15, 817, has stems 12 to 15 inches long - the plant 2 feet across with decumbent or ascending branches. The stamen filaments are quite distinct.

About Kessler Peak and down all down the Yucca forest, to Leima, the desert brush is largely composed of *Eriogonum* mon.

no. 15,812; it is 8 to 14 or 15 inches high, dense little clumps are the plants; forming often 40 to 70 feet of the stand.

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— *Chelopsis saligna* at Windmill sta. 4000 ft.

no. 15,801. *Oenothera trichocalyx* Nutt. See Perennial.

(No. 15,802. *Eriogonum* M-2 *trichopes* Torr. Frém.

no. 15,803. *Baileya multiradiata* See p. 9.

no. 15,804. *Chaenactis carphoclinioides* Gray.

no. 15,805. *Menodora spinescens* Gray ~~*Polygala acantho-*~~ ~~*clada*~~ See p. 8 ante. Gray.

Near Yucca Grove road sta.

— Collecting. It is very necessary in the desert when time is scarce to eliminate all waste motion when collecting. D. F. Higgins, the engineer, watching me put plants in press in the face of a trying wind said: "Well, I see you in Palestine, have developed a technique".

no. 15,806. *Eriogonum fasciculatum* var. *poliferum*

Summit road sta., betw. Halloran Sprs.
and Windmill road sta., 3800 ft.

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- 10
 ✓ No. 15, 807. *Salvia* ^{Dorr ii} ~~canosa~~ Dougl. var.
 ssp. *argentea* (Zell.) Jepson. var.
 ~~hirsuta~~ (Gray) *peruvifolia* var.
 ✓ No. 15, 808. *Krameria* ~~glauca~~ *glauca* Dougl.
 (Rose & Painter) *Michx.*
 = *Eriastrum eremica* (Jeps.) Mason
 ✓ No. 15, 809. *Navarretia eremica* Jeps.
 syn. = *Hughelia eremica* Jepson.
 ✓ No. 15, 810. *Eriogonum pusillum* S. & G.
 ✓ No. 15, 811. *Acamptopappus*
 sphaerocephalus (Haw. & Gray) Gray
 ✓ No. 15, 812. *Ericameria monactis*
 see p. 14.
 ✓ No. 15, 813. *Dryadia*
 ✓ No. 15, 814. *Castilleja angustifolia*
 G. Don. Yucca Grove road sta.
 ✓ No. 15, 815. *Thamnosma montana*
 Gray & Arn.
 ✓ No. 15, 816. *Stanleya pinnata* Britt.
 ✓ No. 15, 817. *Mirabilis fraebelii* Greene
 This myctog-

No. 15,826. *Juniperus utahensis*
oleosperma Little

= *Eriastrum diffusum* (Gray) Mason &
No. 15,827. *Navarretia diffusa* (Gray)

= *Hugelia diffusa* (Gray) Jepson.

No. 15,828. *Cryptantha* (Greeneo-
charis) *circumscissa* Jtn.

No. 15,829. *Euphorbia albomarginata*
J. & G.

No. 15,830. *Machaeranthera*
canescens (Pursh) Gray
leucanthemifolia (Greene) Compositae

No. 15,831. *Oxytheca Chorizanthe*
churberi (Gray) Wats.

No. 15,832.

Compositae

No. 15,833. *Astragalus lentiginosus*
Dougl. var. *fremontii* Wats.

No. 15,834. *Coleogyne ramosissima* Torr.

This rosaceous shrub

2 to 3 ft. h. is very common all over
this region.

No. 15,835. *Gilia* *transmontana*
sinuata Dougl.

No. 15,836. *Phacelia*

- Cont. from p. 13. From Crane Valley we
drive to Barstow, passing near Germo
the State Plant Quarantine Station.
The inspector asks us a few questions
to satisfy himself that we have
not been outside California and
we go on. Cars from over the border
are being searched.

In the cañon near Camern,
desert side of the Tehachapis, we
stop and botanize: a fine great area
nearly pure of *Salazaria mexicana*
in fruit; *Yucca whipplei* in flower
and bloom, its shafts making
flames of light up the slopes;
Forestiera mexicana, ^{no. 15,880.} a colony 100
20 to 30 ft. wide,
feet across, and 14 feet high; *Set*
radynia spinosa (!); *Isomeris*
arbores, evergreen; *Prunus fascicularis*,
Argemone (no. 15,881).

The *Salazaria mexicana* makes
colonies 10 x 15 feet.
dense

- *Asclepias californica* Nutt. Just near Tehachapi Pass, proper, perhaps 500 feet down, a tree occurs in bloom. Fairly high altitude for it.
- *Opuntia treleasei* Coulter. Hundreds of acres on Caliente Creek flats near Bena sta., and over the hills abundant, extending as far as Edison sta.

[*Quercus dumosa* in the Tumbler Range. See p. 22. A tree photographed by Miss Crum, with Mrs. Frederick looking up at it = 3 ft. diam., ^{at left} 52 feet high.

Trees photo. by myself:

- a. Car in far background, 4 ft. diam. trunk at 2 ft., 45 ft. h.
- b. Trees by cabin, 45 to 55 ft. h., trunks 2 to 3 ft. diam. at 1 foot. Very extraordinary trees.

In this open stand are *Juniperus californica* trees. It is a "mixed" forest of these two species, the *Q. dumosa*, with its much more ^{but mainly} crowns. *Juniperus californica* = 20 ft. high.

- We camp behind the school at Edison on the level plain. The mockingbirds are singing amongst the *Strophos* *polycarpa* bushes, and after the sun sinks the night hawks gyrate through the air in quest of their evening meal.

- *Tribulus terrestris* Edison.

- The next morning, Thursday, June 5, we travel north; stop at Bakersfield for supplies, and then west across the valley by the settlement of Rosedale and Buttonwillow; at the latter place I am struck by the great field of Russian Knapweed (*Centaurea nigra* no. 15,882), fl. lavender, that grows rankly, 1½ to 3½ feet high, to the exclusion of all other things. It would be extremely difficult to walk through, or over. It is, with its deep-seated taproots, here to stay. ^{Cont.} p. 7.

We run on to McKittrick and thence over the Tumbler Range into the Carrizo Plain country. On the east slope as we ascend it is obvious the scattered oak growth is unusual. It proves to be *Quercus dumosa* growth in its arboreal state - trees with distinct trunks and broad rounded umbrageous like crowns 10 to 16 feet high. This is unquestionably *Quercus dumosa*; there is every stage of it from the lowest scrub growth. A little higher, on the right hand side of the road, near and about an old ranch site, or at least cabin site, there is a growth of large trees which seem to be *Quercus dumosa* in spite of their great size, trunks 1 to 4 feet in diameter and crowns 30 to 55 feet high; but

June 5, 1931.

the foliage is that of *Quercus dumosa*. If these are of that species, then the species gets to a size far beyond anything I have known, and historically there is the greatest significance to it. It is possible that the foliage is highly reduced *Quercus douglasii* foliage - but the trees, the trunks, the line of the crown do not seem like Blue Oak. The test will be acorns in the fall.

Over the range, the Carrizo Plain. The Soda Lake glistens like a sheet of water. We turn north and work over the plain, getting directions from a pleasant rancher who tells us how to pick up the Simla "road" to Bitterwater Valley. These are mere wagon trails. We go on happily; the low rounded hills widening

over, swallowing us in shallow valleys that give a wide prospect over the brown and tan-colored hills - soft, smooth, pliant - and yet strong and eternal beneath the velvet-grassy coat - and never a tree or shrub or rock to mar its continuous and even undulating. And so on out into Bitterwater Creek. The lake ^(Great Lake) is dry. The rancher on the Carrizo plain from whom I got ^{wagon} trail directions said that for 67 continuous days this last winter (in the latter part) there was no rainfall. In the Bitterwater Valley ^{that is valley of Bitterwater Creek, * see p. 35.} I saw many birds: ravens, gophers. On to Cholame, then through the Cholame Valley where were more birds: ravens; vultures; Swainson hawks sitting in a field, one here, one there not far away, preying upon small mammals of the

earth (rodents and gophers), a gregarious habit common to these birds but not to the Redtail Hawk. Also a few Lewis Woodpeckers with dark or black bodies and a flash of red.

And so on to Parkfield - lovely Parkfield with its oak-covered valley floors and its charming but nearly deserted village. The heyday of this little place was about 1881 when the hall was built. Then, ^{at that time,} there were three stores, three blacksmith shops, a post office, and most significantly three saloons patronized on Saturday and Sunday by all the cowboys for fifteen miles around. Then a horse race up the village street - arched by the great branches of the Valley Oaks - the loser treating the crowd at the saloon to beer - and paying the five dollars. All this from Johnny Greenlaw, Scotchman, born in Edinburgh and knowing the city well,

held, hearty and 74, bemoaning loudly the advent of prohibition and lamenting the good old days now gone.

Birds here in the village street amongst the oaks - birds, birds, singing, calling. California Woodpecker, nuthatch; Baltimore Oriole.

Ailanthus glandulosa is spontaneous here.

The California woodpeckers are common here. They form a happy sociable bunch. There is a biting air to their call - a sort of devil-may-care song: Oh, come along; oh come along; what's the use. Let's have fun! A busy rollicking lot - just the sort of noisy cry that appeals to the heart of a boy.

No. 15,837. *Dysodia*

No. 15,838. ^{= *Eriogonum*} *Hugelia eremica* Jepson.

No. 15,839. *Leucelene ericoides*

No. 15,840. *Lupinus odoratus* Hel.
var. *villosellus* C. P. Sm.

No. 15,841. *Hilaria rigida* (Thurb.) Benth.
[det. Beecher Crampton, Jan, 1973] Grass.

No. 15,842. *Baileya multiradiata*

No. 15,843. *Asclepias erosa* Torr.

1 1/2 to 2 ft.

No. 15,844.

Low Echinoid.

No. 15,845. *Chorizanthe*

No. 15,846. *Sphaeralcea ambigua*
Gray.

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Cima, e. Mohave Desert, June 2,
4200 ft. 1931.No. 15,847. *Salzola kali* L.
var. *tenuifolia* Tausch. Abundant

by railroad tracks.

No. 15,848. *Hugelia eremica* Jepson= *Eriastrum*
See p. 13.
= *Eriastrum diffusum* (Gray) MasonNo. 15,849. *Hugelia diffusa* (Gray) Jepson.

Low Polemonioid.

No. 15,850. *Eriogonum crichopes*See p. 11 ante. Covering hundreds
of acres of valley flats with a
fleshy yellowish-green sheen.No. 15,851. *Lycium cooperi* Gray.No. 15,852. *Machaeranthera canescens*
(Pursh) Gray Purple rays.No. 15,853. *Eriogonum nidularium*
Cov. white fls.No. 15,854. *Eriogonum nidularium* Cov.
Yellowish fls.No. 15,855. *Eriastrum diffusum* (Gray) Mason
Low polemonioid.

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In the marshes beyond (SE. of) Los
Banos we saw many water birds:
Belted Tern (White Pk. * Fly. up the creek)
Kill Deer, and many many other feed-
ing. [* * Cont. from p. 1.]Yermo, Mohave Desert, June 3, '31.
c. 2000 ft.No. 15,856. *Chaenactis*
carphoclinia Gray.No. 15,857. *Eriogonum reniforme*
Torr. & Frem.No. 15,858. *Oligomeris linifolia* Mcbr.No. 15,859. *Eriogonum thomasi*No. 15,860. *Eriogonum watsonii*No. 15,861. = *Eremalche*
sphaeralcea rotundifolia
Jepson.No. 15,862. *Charizantha rigida* J. & G.No. 15,863. *Eriogonum maculatum*

* See p. 31.]

No. 15, 864. *Eschscholtzia**glyptosperma* GreeneNo. 15, 865. *Monoptilon*

The two sheets may not be the same.

No. 15, 866. *Cryptantha angustifolia*
Greene.No. 15, 867. *Mentzelia multiflora* Gray.No. 15, 867a. *Mentzelia tricuspidata* Gray.No. 15, 868. *Oxytheca*No. 15, 869. *Oenothera brevipes* Gray.No. 15, 870. *Dalea mollis* Bth.No. 15, 871. *Mentzelia albicaulis* Dougl.
Cor. yellow.No. 15, 872. *Langloisia schottii*
(Torr.) GreeneNo. 15, 873. *Syngodesmia**exigua* Gray.

Cichoriad.

det. R. B. G. Lupi Dec. 22, 1960

No. 15, 874. *Yucca canescens* T. & G.No. 15, 875 *Stephanomeria pucillera*

Cichoriad.

An extremely close weave, that is to say, the branches are interwoven from the base, so that in cutting away lower branches one finds they do not come free. About $\frac{1}{2}$ of this spec. was cut away.

Mesophytic Types in the Desert.

A considerable number of mesophytic genera have their representatives in the desert: *Castilleja* (no. 15, 814); *Lepidium fremontii* (xerophytic) but *L. densiflorum*, a vernal adaptation (no. 15, 819).

* Cont. from p. 29, third line. This name I have always mis-spelled Scheid Poke or Shide Poke, in one or the other way, I forget which.

Cameron sta., Tehachapi

June 3, 1931.

No. 15,876. *Prunus fasciculata*

Hillslope. Rigid bush 4 ft. h.

No. 15,877. *Astragalus douglasii*

Gray.

The litter of pots beneath the plant is striking, covering the ground completely. Sandy soil.

No. 15,878. *Eriogonum nudum* var. *pubiflorum*
fls. sulphur-yellow;

stems flexuous!! several from base

No. 15,879. *Juniperus californica*No. 15,880. *Forestiera neomexicana*

Gray.

See p. 19.

No. 15,881. *Argemone munita*

Dur. & Silz.

Diffuse plant,
9 to 15 inches high. Cameron sta.

Buttontwillow, Kern Co.,

June 4, 1931.

No. 15,882. *Ceanothus*

Basal leaves in a separate sheet. See p. 21, ante.

- *Striflex polycarpa*. Wonderfully extensive tracts of it over the entire valley floor between Rosedale and Buttontwillow and west to the foothills; a huge sheet of it.Tumbler Creek, Tumbler Range,
June 4, 1931; 2800 feet, w. Kern County.No. 15,883. *Quercus dumosa* Nutt.Tree 36 ft. h - 5' 8 ft. broad,
branching from ground, its lower
branches spreading very widely.
Trunk 2 1/2 feet diam. at very
ground.*Quercus dumosa* in Tumbler Range
About half-way up the range
- McKittrick to summit (above Carrizo)

Tumbler Creek, Tumbler Range,
w. Kern Co., 2800 feet, June 4, 1931.

Plain) we chance into a remarkable stand of *Quercus dumosa*. Being very large trees, they are impressive. See photograph in photo file. Cf. p. 22 ante. There are, of course, no acorns at this time; and acorns should be had to make identification certain.

- No. 15, 884. *Solanum californicum*.
Dwarf. Bush-like plant on hill-slope, 10 feet broad, 5 ft. high.
- No. 15, 885. *Chorizanthe uniaristata* T. & G.
Prostrate; hard ground.
- No. 15, 886. *Lagophylla ramosissima*

Nutt.

Grant Lake, Palo Prieto Pass,
SE. San Luis Obispo Co., 2000 ft.
June 4, 1931.

- No. 15, 887. *Cressa* ^{*californica* L. Hill.} ~~*trivillensis* H.B.K.~~
slope, very gentle, - forming a considerable colony.
- No. 15, 888. *Verbena bracteata* Lag.
L. Rodr. old lake bed.
- No. 15, 889. *Amaranthus*.
old lake bed.
- No. 15, 890. *Astragalus douglasii* Gray.
dry flats.
- No. 15, 891. *Nicotiana bigelovii* Wats.

Gholame, San Luis Obispo Co.
1200 ft. June 4, 1931.

- No. 15, 892. *Astragalus asymmetricus*
Sched.

* Cont. from p. 24. The name of this valley is doubtless Choice Valley, in it, anyway, is the Choice Valley School. Upper end of this valley we saw a road runner

No. 15,893. *Charizanthus uniaristata* T. & G.
Perianth tubular, its segs.

a little over $\frac{1}{4}$ as long as tube.

Outer segments with a linear notch,
inner segments shorter, fringed shortly.

Perianth magenta. Dry flats.

No. 15,894. *Eriogonum gracile*
Dry flats.

No. 15,895. *Hemizonia Lobbii* Greene

— Cont. from p. 182, line 6 from
bottom. No. 15,895. Epperson road sta.
was not Venado, but higher
up the mountain on an old
road to left of present road
which went rather directly
up the mountain to Bear
Valley. This information from
Carl Purdy.

No. 15,896. *Pentstemon heterophyllus*
Bth. Lower lips recurved

or turned downward a bit. Creek
bank.

No. 15,897. *Pentstemon centranthi-*
folius Bth.

No. 15,898. *Phacelia ramosissima*
Dougl.

This hydrophyll is
a very impressive plant on a steep
hillside burn, deep sandy-loamy
soil. Stems long, trailing, ascending
only at end, i.e. the inflorescence.
Cor. purple, border curved backward
all around, exposing stamens.
Stems 3 to 4 feet long. Heavy per-
ennial root. Weak fleshy stems.

No. 15,899. *Rhamnus*

No. 15,900. *Hulsea heterochroma*
Stem erect, making

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Cholame Creek, upper end, Mont-

a tall rather slender column
5 to 6 ft. high, branching a top, or
above the middle, sometimes near
the base. On steep hillside "burn", deep
sand-loam soil. Stems fistulose. Rays
red-brown. Stems succulent.

No. 15,901. *Lagophylla ramosissima*
Nutt. dry flats.

No. 15,902. *Gilia latiflora* Gray.
Loose sandy bank.

No. 15,903. *Oenothera dentata* Cav. var.
campestris Jepson. Loose sandy bank,
stems radiating wheel-like from
root-crown, ascending.

No. 15,904. *L. Jepsonii* ssp. *californicus*
Lathyrus watsonii White.

Banner dull white
with purple lines in median band,
wings with a yellowish cast,
keel dull or yellowish white
with a pinkish tint at tip.

Sandy-loamy bank.

No. 15,905. *Glycyrrhiza lepidota* Ph.
moist flat.

Gray Co., June 4, 1931, 2200 ft.

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No. 15,906. *Mimulus fremontii* Gray.
steep sandy

bank, with little else but this
species scattered over it.

No. 15,907. *Chorizanthe* ^{*C. douglasii* *nonconii*}
Involucre with petaloid

(pink-rose) border, 3 long hooked
teeth, 3 short hooked teeth. Peri-
anth clavate-tubular, its lobes
short, equal, truncate; larger lobes
shortly lobed, all the lobes minutely
toothed. Invol. 1-flowered in those
examined. Per. pinkish-white, hid-
den in the involucre's center. Gliding
sandy bank.

No. 15,908. *Chorizanthe californica*
Invol. 1-flowered. Perianth
white, exserted on a pedicel, its
six lobes distinct or nearly so,
equal,
narrow-obovate, entire, with a
brown midrib, slightly hairy on
back. Filthers red-brown, notched

Cholame Creek (upper end), Monterey
base and apex,

No. 15,909. *Gilia* (*Linanthus*) *bicolor*
(Nutt.) ^{*androsaceus*}
Sandy bank.

Corolla white, turning lavender.

No. 15,910. *Pentstemon heterophyllus*
Bth. Lower lip corolla

nearly straight, that is extending outwards, not recurving.

cf. no. 15,896.

No. 15,911. *Acanthomintha obovata*
Gipson Adobe flat, black soil but remarkably friable! Large colony, almost exclusive stand of this species. Cor. white.

No. 15,912. *Morandella breweri* Gray.
Cor. lavender.

Dry flat.

No. 15,913.

Composite.

No. 15,914. *Bloomeria*

Sandy flat.

Co., June 4, 1931, 2200 ft.

No. 15,915. *Eriogonum gracile*

No. 15,916. *Calochortus splendens* Dougl.
Pale lavender fl.

Sandy flat.

No. 15,917. *Nicotiana bigelovii*
Wats. Stellately 5-lobed

white corolla. Plants 4½ feet h.

^{*Eriodictyon tomentosum* Bth.}
New leaves silvery, old leaves at base of shrub green. Inflourescence

— *Eremocarpus setigerus*

— *Prunus demissa* 10 ft. h.

— *Arctostaphylos manganita* Parry.
Individuals fire-killed! No crown sprouting! Foliage that of this sp.

— *Hulsea* (no. 15,900). Rays burnt orange, bitter say. Loamy hillslope.

— This station, upper Cholame Creek, is about 10 miles from Parkfield on road to Stone Cañon. It is a wonderful botanizing spot, many of the plants being on a burn.

Stone Cañon, June 5, 1931.
Monterey Co.

- No. 15,918. *Eriodictyon tomentosum* Bth.
5-8 ft. h., abundant.
New leaves, or at least those of
inflorescence shoots silvery!!
those at base of shrub larger
and green!

Stone Cañon, Monterey Co.
June 5, 1931.

- No. 15,919. *Cirsium*.
6 ft. h. Stem
branched only at top (inflorescence),
the leaves taken basally.
- No. 15,920. *Asclepias viscarpa* Bth.

Gima, e. Mohave Des.,
June 2, 1931.

- No. 15,921. *Plantago*.
= *Eriastrum*
- No. 15,922. *Hugelia eremica* Jepson.
New Polemonioid.

Amargo (5 mi. w. of)
Mohave Desert, June 1, '31.

- No. 15,923. *Eriogonum mohavense*

- *Adenostoma fasciculatum*

Near Stone Cañon.

- *Datura meteloides* DC. Observed
all the way from Buttonwillow
to Peach Tree Valley. Solitary or
only a few plants in a place
and at scattered stations. It
is widely distributed and on the
whole frequent.

- *Pinus sabiniana* Dougl. Branch-
ing in one plane, or basket
wise; in Stone Cañon often in one
plane. Traveling northerly thru
Peach Tree Valley we see on the
east side a slope of bigger
Pines - a young forest - uniform
stand - no old trees or broken
ones. Definite hillslope area.

June 6, 1931.

- As we come down the hill into Peach Tree Valley head (that is, after coming over the hill from Stone Canyon) we run along the west edge of the valley floor at the base of the hills. It is a smooth dirt road or rather wagon trail amongst the scattered oaks, crossing the mouths of tiny canyons, an enchanting road, reminiscent in a high degree of early day roads in California. In fact it is just that, with the same setting the most beautiful of the early day roads had. A trail rather than a road, since ^{wagon} not improved.

- *Eriodictyon tomentosum* Bth., in Bear Valley. Unshaped corolla.

- Went to Lake Tahoe today with Dr. R. W. Chaney, Carnegie Institution. For details of this trip see vol. 53, p. 122.

No. 15,924. *Senecio integerrimus* (var. *exaltatus*) (Nutt.) Cronq.
Common in open and moderately thick stands of pine and fir, in granite-sandy soil. Echo Lake, Eldorado Co.

^{Placer Co.; All nos. below. June 17.}
No. 15,925. *Potamogeton filiformis* Pers.
Lake Tahoe (Mink Harbor, Crystal Bay). Shallow margin of lake. 6300 ft.

No. 15,926. *Carex*

With 15,925;

in sand bank.

No. 15,927. *Carex*

With 15,926.

No. 15,928. *Purshia*

Tahoe Vista.

No. 15,929. *Orthocarpus*

Tahoe Vista.

No. 15,930. *Carex*

Sandy flats. Tahoe Vista.

No. 15,931. *Myosurus*

Tahoe City. Moist flat in meadow

No. 15,932. *Pentstemon procerus* Dougl.*
 Placer Co. *Tahoe City. Meadow flats.*
 6700 ft. * *P. oregonensis* Greene form.

— *Photinia arbutifolia* Lindl.

Altho' the main stock of berries for the San Francisco market come at one time from Tuolumne Co., we have no spms. from Tuolumne Co. or scarcely anywhere in the Sierra Nevada foothills. I find an old note of mine "Sierra (Tehama Co.) foothills, but on what it rests I know not now. But J. W. Blankinship found it at Shasta, Shasta Co., and Mrs. R. M. Austin in Butte Co.

at Univ. Cal. Summer Session

— July 28, 1931. Lecture by C. Leonard Huxkins, Professor of Botany at McGill University, on "Crime as Fate".

I, as a Botanist, never heard of him.

Well, — he is a geneticist — which might account for the title of his lecture.

July 19, 1931.

We stopped to look at a group of conifers on the northerly slope of the hills betw. Bodega Road and Bodega*. To get at them we crossed Salmon Creek and went up a little hill and found nice things on the way. In the low growth about the conifers I found *Crataegus douglasii* Lindl. I was much struck by its very slender trunks, several stems from the ground (in a cluster), 10 to 16 feet high, the trunks 3 or 4 inches in diameter, little branched and that little above. The conifers at a distance were thought to be *Pinus muricata* — but since none were known from this region it was natural to find that the trees were *Pseudotsuga taxifolia*. One old patriarch with a lateral

~~See p. 58.~~

trunk curving out from the main trunk gave a distinctive ^{flat base} mark to the tree, which was further emphasized by the branching of the erect main trunk at about ten feet into two equal erect trunks. This tree about 90 feet high. Looking east only I see a few miles away many small open clusters of this species in similar situations scattered through the hills.

See *Verbascum thapsus*

No. 15,933. *Acaena californica* Bitter
On the open slopes in small depressed tufts. ^{Grassy}

No. 15,934. *Crataegus douglasii* Lindl. See p. 47 ante. "Berries" at first green, then red, then black.

No. 15,935. *Artemisia douglasiana* Benth.
Stems unbranched from base, clustered, 4-5 ft. h. Creek bottom.

No. 15,936. *Daucus carota* L.
Erect, 5 ft. h. Stream bed.

No. 15,937. *Gnaphalium*
Stream "bottom".

No. 15,938. *Mentha pulegium* L.
~~stream bed~~ Stream bottom.

No. 15,939. *Eriogonum latifolium* Sm. Sea-cliffs n. of Salmon Creek outlet (mouth). The plants tend to trail down the face of the bluff and form nearly prostrate mats. See p. 53.

No. 15,940. *Angelica hendersonii* C. R. Face of the sea-bluffs; $\frac{1}{2}$ to $2\frac{1}{2}$ ft. h. Leaves fleshy, stiff; laterals of the leaf at right angles to the rachis, the leaflets at right angles to the laterals (or pinnae). ^{See p. 53.} With 15,939.

No. 15,941. ^{Dudleya} *Cotyledon*

With 15,939.

See p. 54.

(Discarded, insect damaged)

No. 15, 942. *Tramseria*

Stems trailing on the beach at foot of the sea-bluffs; 3 to 4 feet long.

No. 15, 943. *Gnaphalium purpureum*

Face of sea-bluffs.

No. 15, 944. *Statice arctica* Blake
var. *californica* Blake. Face of

sea-bluffs. See p. 54.

No. 15, 945. *Scirpus* ^{*cernuus* Vahl var. *californicus* (Torr.) Becker} ~~*californicus* Torr?~~

Perennial? Springy spot on the face of sea-bluffs, this sedge made a pure colony 10 x 15 feet.

No. 15, 946. *Eryngium armatum* C.

R. See p. 53. Top of the sea bluffs.

No. 15, 947. *Baccharis*

Notice the cluster of slender napiform roots. Face of the sea bluffs. See p. 54.

No. 15, 948. *Plantago maritima* L.

See p. 54. Face of the sea-bluffs.

No. 15, 949. *Grindelia*

See p. 54. Somewhat suffrutescent,

The persistent stems 2 to 8 inches long.
Top of the sea bluffs.No. 15, 950. *Orobancha*

See p. 54. Top of sea-bluffs

No. 15, 951. *Cirsium*

See p. 54. Top of sea-bluffs.

— We halted for our mid-day meal at a point a few miles north of Bodega Bay. The road runs along the ocean bluffs. We stopped on one of these little outcurving bluffs. The fog hid the sun and the wind blew rather sharp and cold from the ocean. So we carried our boxes of food and fire gear down the face of the bluff to the very rocky beach. Here we found no wind! With the waves pounding in we made a fire, heated corn, heated chicken pies and snatched off these, and grapefruit, peaches, apple pie, hot coffee, milk!

No. 15,952. *Lupinus arboreus* Sims.

Shrubs, many-stemmed, rounded, 4 to 6 ft. h. Petals light blue; whitish, glabrous. Keel ciliate ^{barber} (somewhat densely) from just below apex of acumen nearly to base, there being a glabrous zone both at top and bottom, a zone short but distinct.

No. 15,953. *Carex*

Stems in clumps, the clumps roundish in outline on the ground, 4 to 10 in diameter. Forming a large colony in the bottom of a broad flat stream; the clumps 4 to 5 ft. h. (cont. p. 58).

No. 15,954. *Erechtites pinnatifida* Desf. Redwood forest, betw. Russian River mouth and Occidental, in the Outer Coast Range. 5 to 6 ft. h.

- How very distinctive is the littoral flora! It is confined to a very narrow strip but in that strip nature has marked every species, nearly, as distinctive. *Angelica hendersonii*, squat, condensed foliage; condensed inflorescence, is plainly *Angelica tahenlosa* of the (interior) middle Coast Range but changed, made succulent, by the impact of the sea. *Eryngium armatum* is *E. vaseyi* growing out of water pools on the rather dry sea-bluffs, the leafy organs, foliaceous or involueral - becoming entire or subentire. *Eriogonum latifolium*, trailing on the bluffs, forming loose mats, recalls so strongly *E. lobbi* of the high Sierra Nevada. Other strictly

Sea-bluffs betw. Bodega Bay and
Russian River mouth, July 19, 1931.
near Scotts Creek.

maritime species are *Plantago*
maritima L., *Gerardia* (no. 15,947),

Cotyledon (no. 15,941), *Cirsium*
(no. 15,951), *Orobanch*

(no. 15,950).

A marked adaptation to the narrow sea-zone is

Grindelia (no. 15,949)

with its diffuse or trailing habit, growing abundantly on the sea bluffs, both on the summits and the face. It is just *Grindelia complanata* of the interior adapted to littoral conditions. *Statice arctica* var. *californica* Blake (no. 15,944) is a true littoral of itself.

— *Silphium marianum* Gaertn. Very common about all the dairy ranches near mouth of Russian River.

— *Verbascum thapsus* L. At Watson School. cf. p. 48.

Outer Coast Range west of Occidental,
Sonoma Co. July 19, 1931.

From the mouth of Russian River we take a little narrow but good country road with runs through ranches (with gates to open every few miles) and climbs over the Coast Range (outer) and goes down the other side to the town of Occidental. On top we run out of bright sunshine into a dark wood—a wood so dense that only a dim cathedral light is diffused. It is a Tan Oak wood (*Paranix densiflora*) the trunks thickly set but slender and running well up, so that the closing canopy is high. Perhaps a hundred acres—so far as we can see it—of this Tan Oak wood. We have for sometime been amongst Redwoods, Madroños, Douglas Fir—and these continue down the eastern slope. On these high ridges we obtain a fine

view of Mt. St. Helena, ^{and} the southern part of the Siyakma Range (Jensen Peak, Cobb Mt.); and the Kapa Range. Mt. St. Helena standing broad-side, its high point at the north end, its north slope falling off so abruptly - is more massive, more impressive, than from any other point of the compass. It boldly dominates all ridges and peaks in that region; the effect of the mountain wall from this side is much strengthened by the trough of the Russian River valley which lies to the west. The foothills sink to their proper proportions, detract nothing from the massiveness and height of St. Helena's long summit. - All through the Redwoods is the Australian Fiebard, *Crechtites prenanthoides* (no. 15,954), an

July 19, 1931.

extremely unwelcome intruder in my eyes.

* cf. p. 52. We stopped in a little creek bottom about a mile or so easterly from the ferry over Russian River, south of the river and about opposite Markham which is on the north bank. Here were collected nos. 15,952, 15,953. While putting these spms. in press two men of the countryside came along, and at once asked questions as to what I was doing. What was this good for? what that? Then the younger man of the two said of *Lupinus arboreus*: "It keeps your hair from getting gray. Yes; a wash is made by boiling the herbage. I knew a man who used it. His hair was turning, and the natural color came back". Any rejuvenator, false or genuine, appeals to the common run.

No. 15,955. *Pseudotsuga taxifolia*
Britt. Watson School near Godega.
cf. pp. 47, 48, ante. 7/19/31.

No. 15,956. *Castilleja*

Sea bluffs at Scotts
Creek. Herbage and flowers pale
green or whitish, blackening much
in drying.

- Cont. no. 15,953. These extremely
heavy stools of sedge, forming a
marked feature in the landscape,
are not described at all as practically
at all as to this habit in the Manual.
cf. A.B. 51:140. This species of the
coast is probably not the one of the
Sacramento River Cañon, but the
one of Chiles Creek in the Kapa
Range (no. 9070). may be the same
as the Sacramento River Cañon
one. cf. no. 8280 at Paper Mill Creek,

Marine Co.

- *Scirpus mexicana* Cav. near Yarmouth.
- Aug. 5, 1931

Aug. 5, '31.

ns. of Newman,

72 ft. Merced River bridge near its junction
with the San Joaquin River, Aug. 5, '31.
1 1/4 mi. e. of Hills Ferry on San Joaquin R.

Travelling southerly and easterly
we cross the San Joaquin River bridge
near Newman (and in a short time) cross the Merced
River and on its south bank near the bridge
find a public camp ground with scattered
oaks (*Quercus lobata*). (As to bridges
see p. 10 & seq.)

No. 15,957. *Grindelia*

River bottoms, in clumps, stems tall,
3 to 4 ft., simple, i.e. branching only above.

No. 15,958. *Helianthus annuus*

River bottoms.

No. 15,959. *Cucurbita foetidissima* H.B.K.

River flats.

- Between the Merced River bridge
and the flat sandy lands of the
San Joaquin Valley, on the
Mellican bridge*, grow in great abund-
ance *Heterotheca grandiflora* - colonies
filling the fields with a fine stand. It
has not yet come into flower. The
* over the Merced River. See p. 108.

tall simple stems, regularly, squably foliaceous with their broad leaves, are ^{like slender} trunks 3 to 5 ft. high, presenting an aspect different from that of any other Composite in California. Simple straight stems give a columnar appearance. Fields full of it. Irregularly leafy.

- We run across the valley to Cathay Valley ^(see p. 68) in the Sierra foothills of Mariposa Co., stop the night at a road-side camp, go on the next morning on the way to Fish Camp (Summerdale of maps) and about 3 mi. westerly from Cedar Brook (road sta.) we stop in a flat and collect.

No. 15,960. *Antirrhinum* ^{cornutum var.} *septaleum* Gray. Cor. white. Spur a little longer than the very short pedicel of the fl. Upper cor. - lip cleft! Lower cor.-lip with 3 spreading divergent lobes, the pedicel high, rounded, yellowish, medianly channelled. Open sandy flat.

Cont. on p. 63.

No. 15,961. *Cordylanthus*

Plants erect, freely branching, i.e. the main stem with many ascending branches, very floriferous, the whole plants of a pale yellowish-green cast, the flowers numerous over the plant but so inconspicuous from the ^{small and} subtending bracts and leaves, that as I passed near the plants on my eager way to get certain species a little further on they seemed to be only in bud, so well are the flowers concealed or at least not well exposed. But I noticed honey bees busy on the plants and knew that the flowers must be in anthesis. And so they were. Calyx, lips subequal, lower narrow-elliptical, 5-nerved, obtuse, the upper one narrow-ovate, acute. Corolla pale yellowish, its lower lip broadly oblong, entire or nearly so, retrorse, hairy on sides (outer or lower face), a

channel midway between the carinal midnerve and the margin, on each side, that is there are 2 narrow longitudinal channels paralleling the carinated midnerve. Lower cor.-lip purple-spotted at base. Upper pair of stamen filaments densely hairy on outer side; ^{except at base;} lower pair densely hairy on inner side, upper half of filaments.



Lower pair stamen
filaments.

C. rigidus.

Upper cells of
the anther large,
the lower small.

Upper pair of
stamens with
larger anther-
cells than lower
pair. Dehiscing

line of anther-cells hairy. Open
sandy flat, margin of pine woods.

No. 15,962. *Calycadenia mollis* Gray

See next p. Very abundant, filling open
hillside fields with an almost pure
stand succeeding the grass, now dry.

Cont. no. 15,960. Lower pair of stamens with
fils. abruptly - elliptic - ovate dilated at
apex, at base with a fringe of short
spreading hairs on the adnate portion of
the fils., the free filaments glabrous.
Upper pair of stamens; not obviously
dilated at apex, short hairy fringe on free
portion just above point of adnation only.

No. 15,963. *Calycadenia mollis* Gray

Large-rayed. This seems
quite like no. 15,961, and grows
with it, but not intermixed, but is
large-rayed, 15,961 being small-rayed.
It is, here in this place, rare, as
compared with no. 15,961. Open
sandy flat.

No. 15,964. *Euphorbia hirtula* Engelm.
Sandy flat, open.

No. 15,965. *Herniaria*

Sandy flat:

No. 15,966. *Eriogonum roseum*
Indifferently white or

64

Cedar Brook (3 mi. w.), Mariposa Co.
c. 3500 ft. Aug. 6, 1931.yellowish flowered. Sandy soil, open
flats.No. 15,967. *Wyethia elata* H.M.

Hall

This composite was
seen some miles back. In its
special localities it is not rare,
though not abundant or dominant
as *Wyethia*s may be. Mostly 2
to 3 feet high. Sandy opens.

No. 15,968. *Trichostema oblongum*
Bth. Sandy soil, open flats.

No. 15,969. *Lessingia*
Yellow flwd. Sandy
soil, open flats.

No. 15,970. *Lessingia*
Purple flwd. Sandy
soil, open flat.

Fireoso Grove Big Trees, Aug. 6, '31.

Madera Co.

5900 ft.

65

No. 15,971. *Boykinia major* Gray.
Brook side.

No. 15,972. *Vaccinium parvifolium* Sm.
Bush, rounded, 3 ft. h.

Rocky hillslope
No. 15,973. *Allophyllum integrifolium* (Brand) A. & V. Crane.
~~*Plus gilioides* Greene.~~

Cor. white, small, slender.
Wooded cañon side.
No. 15,974. *Trifolium breweri* Wats.

Forming a mat on the
flat of a tiny meadow; its stems radiat-
ing from the crown of a tap-root and
prostrate.

No. 15,975. *Rhododendron occidentale*
Gray.
Moist stream banks,
cañon

No. 15,976. *Lupinus latifolius* Agar-
dh. Keel densely ciliate from base
to lowest part of acumen; acumen pro-
glabrous. Banner glabrous. Upper caly-
sep. notched, lower entire.

No. 15,977. *Castanopsis sempervirens*
Hilleb. 2 to 5 ft. h., wooded cañon.

- From about Bootjack on, we inquired along the way as to the best road, or maybe only road into Fresno Grove. No one had ever really heard of the Fresno Grove Big Trees and thought we must mean Mariposa Grove. Traffic and tourist ^{movement} all mean Mariposa Grove. One man, a square man, insisted we were away off and should have taken a road down into Fresno Co.!

Finally, we found a man who said he had been into the Fresno Grove from Fish Camp, and that we could go out south to Oakhurst. This direction was confirmed at the

Ranger sta., the ranger saying: Turn off right, one-half mile this side of Fish Camp, this side of a roadcut, and follow the ^{old} railroad grade along which the road runs.

At the apple orchard take the

Aug. 6, 1931.

right hand road. Sure enough we found an apple orchard and after several miles saw a sign on upper side of road, "Camp Belah". We turned left into this wood road, kept straight along it, leaving Camp Kelley road to right, and finally came to the grove itself. Many of the best trees were logged long ago, we saw none of the first size, though many very large ones. A small stream - now a faint trickle - the head of Alder Creek, runs through the grove. The upper portion of the grove, where the main logging was done, was patented by one Helder, and, said the ranger, is often referred to as the Helder Grove. There is reproduction, seedling trees 40 to 60 or even 100 ft. h., doubtless 30 or 40 years old, coincident with the cutting here.

Firens Grove Big Trees, Madera Co.List of Species.

- *Chamaebatia foliolosa*
- *Ceanothus cordulatus*
- *Arctostaphylos patula*
- *Oterospora andromeda*
- *Libocedrus decurrens*
- *Pinus lambertiana*
- " *ponderosa*
- *Abies concolor*
- *Alnus rhombifolia*
- *Ribes roezlii*
- *Cornus nuttallii*
- *Adenocaulon bicolor*
- *Ceanothus parvifolius* Trell. note

the few long excurrent, so as to speak, from the small "basal body" of the shrub.

Cont. from p. 60. - About $1\frac{1}{2}$ miles beyond the Cathay auto camp, we stopped by the road-side to get breakfast. As we were finishing we were challenged by the highway patrol on account of having built a fire! What a change from old days.

In these dry hills *Rhus diversiloba* is in the rock piles.

Firens Grove Big Trees.

Sketch map.

Big Creek
headwaters

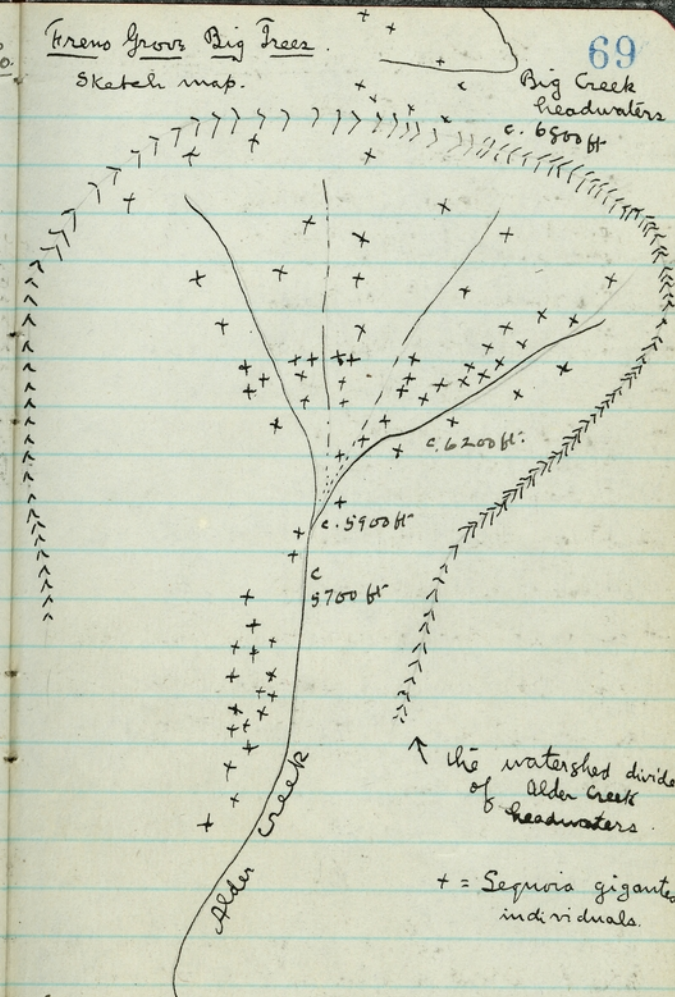
c. 6500 ft

c. 6200 ft.

c. 5900 ft.

c. 5700 ft.

Alder Creek

the watershed divide
of
Alder Creek
headwaters.+ = *Sequoia gigantea*
individuals.

- my estimate of the number of trees in the Fresno Grove is very rough. ^{of Sequoia gigantea}
On the main stream of Alder Creek I count 18 adult individuals, but I may have missed some. Above the ford of the creek, where the old wagon road turns abruptly to the left, there is a roundish basin enclosed by a ridge except where Alder Creek goes out. The "flat" of this basin is meagre but bore the main lot of trees before logging. There are many fine trees here still, as many or more stumps of felled trees. The trees thin out towards the summit of the ridge, but there are occasional and quite fine trees very near the divide. Perhaps there are ^{in all} 100 adult trees, probably 60 stumps of logged ones, in Alder Creek basin. We pass over the divide, at the northernmost point of the basin, and find about eight adult trees, on the

Aug. 7, 1931

adjoining watershed. This locality is on the headwatershed of a minor branch of Big Creek. This gulch is terribly devastated by fire, logging, erosion - and one adult Big Tree has recently died.

The variety of crown form in *Sequoia gigantea*, old trees, shows to marked advantage in this grove. One very large and old tree has a number of remarkable dome-like tops to laterals competing with the main terminal dome. One ^{sees} that these minor domes (except one) arise from a secondary trunk which arises high from the single trunk and closely parallels the larger companion trunk. The tree is double trunked in the high part of its body, upper $\frac{1}{3}$ let us say, and this tendency for the laterals to ascend strongly is exhibited not only on the secondary trunk but in its companion which bears one ascending lateral ending in a dome. There are

a considerable number of other very interesting crows which should be figured.

Reproduction in the grove is ample. The "seedling" or next generation after the adult stand represents trees 40 to 60, or even 110 feet high. There is some *Libocedrus decurrens* here, but not much. Everywhere in the forest it bears an abundance of the lichen *Evernia* on its trunk and dead lower branches. This lichen is never found on the main trunk bark of *Sequoia gigantea* so far as I recall.

The upper part of the grove is called by forest rangers the Nelder Grove from the settler who patented or at least settled on and logged that part.

No. 15,978. *Glyceria elata* (Nash) Hitchc.

This grass grows by waters

edges.

No. 15,979. *Galium*

Dry pine woods.

No. 15,980. *Orypolis occidentalis* C. & B.

This umbellifer becomes

4 ft. h., margins streams and in swampy meadows. Styles not short. No oil-tube obvious at this stage of development of fruit. Rootstock a typical rootstock, the roots below it, some of them, fusiform fleshy! Bract 1, bractlets 2 or 3!

No. 15,981. *Gayophytum lasiospermum* Greene, Dry pine woods.

No. 15,982. *Polygonum*

erect; dry sandy flats.

No. 15,983. *Lupinus latifolius* Asgardh.

Forms a pure stand in a denudated hollow or gulch, plants 3 to

4 ft. high, practically untouched by the cattle bands which have cleaned out the herbage otherwise very thoroughly in this country. This locality is just over the divide from Alder Creek, on the waters of Big Creek cf. description of this locality bottom p. 70 and top p. 71, ante. On the little flats or meadows of Alder Creek this species was cropped a little by cattle but not much. It is now in very green condition on Alder Creek; on the Big Creek gulch referred to, the plants are in mature fruit. c. 6700 ft.

No. 15,984. *Ribes roezlii* Reg.

No. 15,985. *Euphorbia serpyllifolia* Pers. Open sandy flats on the summit of the divide.

No. 15,986. *Chenopodium botrys* with 15,985.

No. 15,987. *Ceanothus fresenensis* Dudley. Forming a circular prostrate mat 10 feet in diam. With 15,985. I mistook this at first sight for *Ceanothus prostratus* on account of its habit.

No. 15,988. *Drapseria systyla* Torr.

This hydrophyll grew with No. 15,987.

No. 15,989. *Stephanomeria virgata*

Poor-dissected with 15,990.

No. 15,990. *Streptanthus tortuosus* var. *opatus*

The first year the plant develops a simple or branched shoot 4 to 12 inches long foliated with thickish fleshy leaves. The next year flowering ^{sub.} shoots with thinish cordately clasping leaves and inflorescences are developed. The plant may also bear a sterile shoot similar to the first year shoot, or it may not. Thus it may be successively dimorphic as to shoots or simultaneously dimorphic.

Rocky open pine slope in good soil

- * No. 15,991. *Agropyron parishii* Scribn. & Sm.
var. laeve Scribn. & Sm. (Det. B. Crampton, 1972)
This grass, 4 to 5 feet h.,

has solitary culms, or if 2 or 3 in a stool, so divergently erect, that the effect under the pines on cañon slope, more or less naked, is of scattered stalks, though forming right here a little colony. The leaves stand out from the culm, rigid, slender, divergent, heightening the effect referred to.

- * No. 15,992. *Elymus glaucus* Buckl.
(det. Beecher Crampton, Nov. 1975)

This grass grows with 15,991, and has a similar habit. Its leaves are likewise divergent from the axis; its culms are scattered. Its herbage is markedly blue-glaucous.

- * No. 15,993. *Elymus glaucus* Buckl.
(det. B. Crampton, Nov. 1975)

Perhaps same as 15,992.

- * No. 15,994. *Agropyron parishii* Scribn. & Sm. var. laeve Scribn. & Sm. (Det. B. Crampton, 1972)
This grass with 15,991 and

has a similar habit. I saw only this one individual, however.

- * No. 15,995. *Linanthus ciliatus* Greene
dry hill slopes

under pines.

- * No. 15,996. *Streptanthus*
First year plants.

- * No. 15,997. *Galium*
dry pine hillslopes

- * No. 15,998. *Streptanthus tortuosus* Kell.
var. *optatus* Jepsen. Plant at least 3-years old, showing last years inflorescence, the sterile year of foliage having been before that. Dry boulder-atrium cañon sides under pines. Stems 1 or few from the base, mostly simple, divergently erect.

- * No. 15,999. *Cirsium*
dry open pine

canyon sides. Stems simple except above, 1½ to 3 ft. h., the leaves mainly in a basal rosette flat on the ground!

No. 16,000. *Sambucus*

5 to 9 ft. h., the berries blue, covered with a white bloom. Chilkoat Creek betw. Fresno Grove and Bass Lake. See p. 79.

No. 16,001. *Galecademia mollis* Gray

Rays golden! Dry flats and hillsides, the simple-stemmed sheet representing the more usual state. Northfork.

No. 16,002. *Mercurialis perfoliata* L.

concolorous rays. Once moist flat, Northfork.

No. 16,003. *Lessingia*

Northfork. Rays purple. Dry

flats and hillsides.

No. 16,004. *Hemizonia Holocarpha heermannii* (Greene) Keck Dry opens in wooded country. Northfork, towards San Joaquin River bridge.

- *Saxifraga peltata* Torr. Chilkoat Creek.

- *Eriodictyon glutinosum* Bth.

Northfork, towards San Joaquin River bridge.

- We see the fearful devastation caused by the fire a few days ago on the once magnificent Pine Ridge.

- *Sambucus*

no.

16,000, is an infrequent species in the Sierra Nevada. Single individuals or small clusters occur on a rocky slope, or along a ridge. This trip I saw more of it on Pine Ridge than elsewhere, several fine colonies of it in protected areas.

no. 16,005. *Gayophytum*
On the side of the road
grade in loose broken soil I saw
a bushy luxuriant plant of this in
full bloom, 3 ft. h. It was very
striking. This dry ground dry season
species, flowering in summer, is
reminiscent of *Epilobium panic-*
ulatum Nutt.

no. 16,006. *Eriogonum nudum*
var. *nudum*. Sandy soil, opens
in pine country.

no. 16,007. *Calyptidium* ^{*spraguei umbellata* Torr.}
Sandy shoulder.

no. 16,008. *Lotus douglasii* Greene
~~var. nevadensis~~ ^{2/5 of plant taken.} Sandy
shoulder. ^{↑ Ott.}

no. 16,009. *Pyrola picta* Sm.
Coniferous woods, sandy soil.

no. 16,010. *Chamaebatia foliolosa* Bth.
Open pine woods.

no. 16,011. *Cardylanthus rigidus* Jepson.

Colonies on an open hillside, pine
country. Mountain shoulder.
no. 16,012. *Corethrogyne filaginifolia* (N. & A.)
Nutt. var. ~~*glomerata* Howell~~
This composite grew with
no. 16,011. Rays lavender-purple, disk yellow.
no. 16,013. *Lupinus latifolius* Agardh.
Keel glabrous or nearly so.
Cattle crop it a little here and there
but in the main the colonies are
of it intact.

1. Any plant which has normally a
prevalingly simple stems may display
branched stems, such as *Streptanthus*
orbiculatus var. *suffrutescens*.
cf. no.

2. Any plant normally small may be-
come large under especially favorable
conditions. cf. no. 16,005.

— We left Fresno Grove Big Trees and ran south-
west to Bass Lake, thence to Northfork and
across the San Joaquin River at Lake Kerchoff,
up to Curry, thence up Pine Ridge and on to
Dinky Meadows where we camped for the night.
Thence to McKinley Big Trees next day (p. 85.)

82

McKinley Grove Big Trees, Aug. 9, '31

Fresno Co., 7700 ft.

No. 16.014. *Agrostis scabra* Willd.
(Det. B. Crampton Mar. 1972) This grass grew in a moist springy place.

No. 16.015. *Pholacostis bolanderi*

This composite is a denizen of swampy places, springy hill-slope meadows.

No. 16.016. *Viola blanda* Willd.
= *V. macloskeyi* Lloyd.

Swampy mdw.

No. 16.017. *Muhlenbergia filiformis* Rydb.

This grass grew in an open pine forest. Loamy fertile spst.

No. 16.018. *Gnaphalium palustre*
with No. 16.017

No. 16.019. *Minulus moschatrus*
Dougl. Herbage not dry.

Springy place.

No. 16.020. *Epilobium brevistylum*
Barbey. Springy place.

Petals pink.

No. 16.021. *Sagina saginoides* (L.) Karst. var. *hesperia* Fern.
This caryophyll grew on a

Dinky Mdw., Fresno Co. Aug. 9, '31.

5600 ft.

83

springy bank. Petals white, ovate. Stamens 10. Stigmas 5.

No. 16.022. *Pyrola picta* Sm.

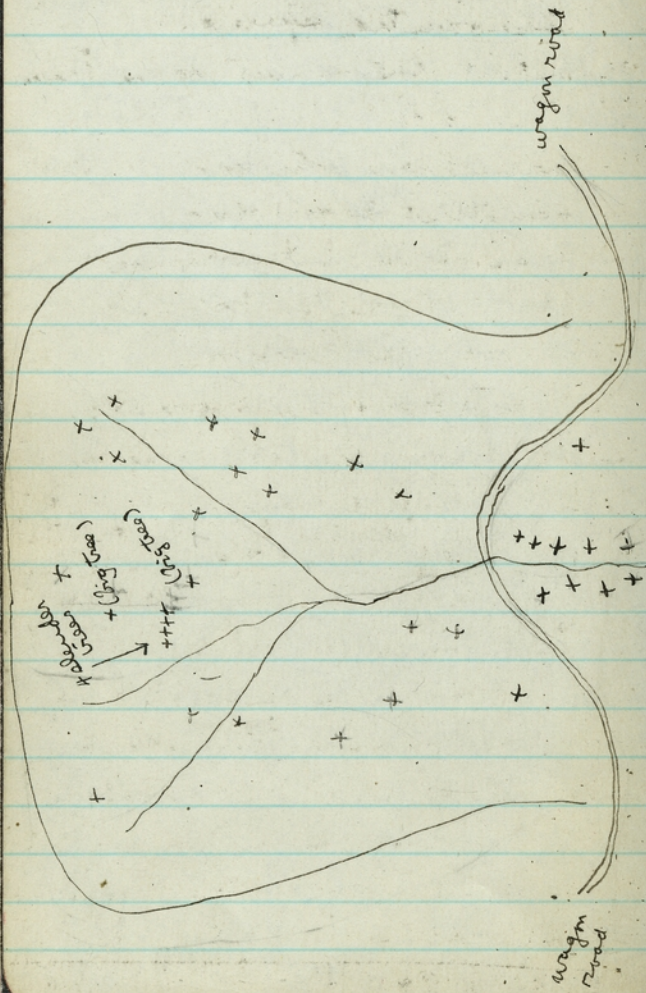
Pine woods.

No. 16.023. *Kelloggia galioides* Torr.

Common on the open pine-needled floors of pine forests. It is nearly always sterile here.

Is this sterility related to vegetative reproduction? The colonies are established, not by seed, but by underground rootstocks. Cont. p. 84.

The McKinley Grove Big Trees lies on a small streamlet which is a branch of ^{Living} Deer Creek, a tributary of Dinky Creek. They are much scattered through the coniferous forest which is a typically dense stand, i.e., dense for the Sierras and this southern portion of the Sierras. There are some large individuals, but no very large one. There are very tall and slender trees, that, of the ^{same} adult generation are still relatively young. My estimate of the number of trees is crude, say 150.



Associated Species

are about the same as at Fresno Big Trees.

- *Chamaebatia foliolosa*
- *Ceanothus parvifolius*
- *Ceanothus integerrimus*
- *Arctostaphylos patula*
- *Adenocaulon bicolor*
- *Pterospora andromeda*
- And the usual conifers

Cont. from bottom p. 81. We spent the day in the McKinley Grove, returned to Dinkley Mdw. and camped another night, ^{next} morning (Aug. 10) to Markwood Mdw., about half-way to Shaver Lake; after which we drove via Big Creek and Huntington Lake to Lake Florence (p. 89).

Cont. no. 16,023. The assemblage of above ground shoots, ^{are} connected by slender underground rootstocks which enter on a ^{small} root-crown which I take to be the crown of the original tap root of the seedling.

* See p. 93.

* * See p. 110

Aug. 10, 1931

- No. 16,024. *Agrostis scabra* Willd.
(det. B. Crampton, Mar. 1932)
This grass grows in the wet flat.
- No. 16,025. *Galium*
Moist spot under a log.
- No. 16,026. *Lotus oblongifolius* Greene var.
Moist flat. ^{var. *oblongifolius* Greene}
- No. 16,027. *Rumex acetosella* ^{*nevadensis*}
♂ + ♀. Rich hillside.
- No. 16,028. *Potentilla* ^{*livida*} *unguiculata*
Rich flat.
- No. 16,029. *Gentiana simplex* Gray.
Moist mdw.
- No. 16,030. *Erigeron lonchophyllus* Hook.
This composite grows in the moist
- No. 16,031. *Mimulus primuloides* ^(mdw. Bth.)
Moist hillslope.
- No. 16,032. *Juncus macrandus* Cov.
Moist mdw.
- No. 16,033. *Erigeron lonchophyllus* Hook.
This composite on the dry sunny flat.
- No. 16,034. *Heterodon variflorus* Nutt.
Moist flat.
- No. 16,035. *Muhlenbergia filiformis* Rydb.
This grass grew on dry flat.
- No. 16,036. *Trifolium microcephalum*
Pursh. Moist flat.
- No. 16,037. *Lotus americanus* Bisch. var.
minutiflorus Ott. Semi-moist flat.
- No. 16,038. *Glyceria elata* (Nash.) Hitchc.
This grass grew in water.
shallow

5900 ft

Aug. 10, 1931

- No. 16,039. *Helenium* *bigelovii*
By stream.
- No. 16,040. *Potentilla gracilis* Dougl. var.
dascia Cron. Semi-moist hill
slope.
- No. 16,041. *Potentilla glandulosa*
Lindl. var. *lactea* Greene Moist mdw.
Petals cream-yellow or white.
- No. 16,042. *Oxypholis occidentalis*
C. + R. This umbellifer grew in
a stream, in water; 4 ft. h.
- No. 16,043. *Phacelia magellanica* Cov. var.
griseophylla (Gray) ^{Jepson} Dry brushy hillside.
- No. 16,044. *Stellaria longipes* Goldie.
Dry brushy hillside.
- No. 16,045. *Eulophus parishii* C. + R.
This umbellifer grows
in a dry flat, moist earlier.
Now
- No. 16,046. *Epilobium brevistylum* Barbey
var. Shallow water.
- No. 16,047. *Epilobium californicum* Hausskn.
= *E. adenocaulum* Hausskn.
with 16,046 but different

- No. 16,048. *Solidago* rich flat
No. 16,049. *Potamogeton natans* L. slow stream
No. 16,050. *Halenium* ^{bigelowii} rich flat
No. 16,051. *Potamogeton alpinus* Balbis
var. *tenusifolius* (Ref.) Ogleth slow stream
No. 16,052. *Mentha arvensis* L. var. *canadensis* Brit. Stream bank
No. 16,053. *Aster* dry flat
No. 16,054. *Eriogonum spergulinum*
var. *reddingianum* dry flat, fine soil
No. 16,055. *Stachys albens* Gray. wet bottom.

- Markwood Mdw. lies in logged country but a living tho small stream runs through it. The spot of botanizing, which was excellent, - water plants, stream-side plants, moist meadow, springy hillside, loamy flat - may not be Markwood Mdw. itself, but near it - the only locally name in the region. After this fine botanizing in the early morning, went on to Lake Florence by night.

- No. 16,056. *Amica Chamissonis* Less. subsp. *foliosa* (Nutt.) Meq. det. R. B. ^{bigelowii} Feb. 2, 1950. Dry river flats at Jackass Mdw. (This no. originally, by error = 16,031, 7250 ft.)
No. 16,057. *Polygonum* with 16,056.
No. 16,058. *Gayophytum ramosissimum* T. & G. with 16,056.
No. 16,059. *Muhlenbergia Richardsonis* (Pursh) Rydb. This grass grows on the dry flats at Jackass Mdw. 7250 ft.
No. 16,060. *Aster* with 16,056.
No. 16,061. *Lupinus pratensis* Hal. River bench, Jackass Mdw.
No. 16,062. *Potentilla gracilis* Dougl. var. *hallii* Wolf. with 16,056.
No. 16,063. *Pentstemon azureus* Bth. var. *angustissimus* Gray. Rock ledges, Lake Florence.

no. 16,064. *Minulus layneae* (Greene)
Gipson. Sandy flats

no. 16,065. *Erigeron divergens* T. & G.
Sandy flats.

no. 16,066. *Pentstemon*
Dry mdw., Jack-

ass Mdw., Lake Florence. (Orig. no. = 16,041).

no. 16,067. *Polygonum*
Lake Florence.

no. 16,068. *Potentilla norvegica* R. ssp.
(This specimen is duplicate of *monspeliensis* (L.)
Lake Florence, Aug.

at old construction camp.

no. 16,069. *Potentilla monspeliensis* L.
(This specimen is duplicate of 16,068)
with 16,068.

no. 16,070. *Cardylanthus tenuis*
Gray. Dry hillslopes
in sandy soil. See p. 93.

-Cont. from p. 88. That is we reached
camp in Jackass Mdw. by 6 o'clock.
That night coyotes turned up,
sounding like 20 or 30, probably
only 2 or 3.

no. 16,071. *Antennaria* *Gnaphalium*
thermophilum Rocky slopes in sandy
soil.

no. 16,072. *Cirsium*
Sandy slopes

no. 16,073. *Pentstemon*
Herbage nat-
to glaucous as in no. 16,066. Rock
ledges.

no. 16,074. *Pentstemon newberryi*
Gray. Loamy flat.

no. 16,075. *Artemisia tridentata* Nutt.
ssp. tridentata
Dry slopes

no. 16,076. *Erigeron breweri* Gray
This composite grows
between rocks in good soil.

- Lake Florence. - *Arctostaphylos pat-*
ula Greene; *Ischscholtzia californica*
(see p. 107); *Ceanothus cordu-*
latus Kell.

"No. 16,077. *Scirpus*
Shores of lake.

"No. 16,078. *Dulichium arundinaceum* (L.) Britt. Forming a zone in shallow water on the margin of the lake, the zone about 20 feet wide, the tube zone (see no. 16,052) inside this. The simple 3-ranked shoots give the colony a distinctive appearance for a sedge border.

"No. 16,079. *Heracleum lanatum* Michx.
Moist flat.

"No. 16,080. *Solidago*
Moist flat.

"No. 16,081. *Haplopappus Bloomeri*
~~*Chrysothamnus*~~
var. *angustatus* Gray
dry slopes.

"No. 16,082. *Equisetum Funstoni* A. N. S. P.
Moist meadow.

The green of the stems is a vivid peculiar green that is quite remarkable. One wonders if the Carboniferous forests had such greens!

- Cont. no. 16,070. Both pair stamens hairy on inside. Lower calyx-lip* oblong, obtuse; the upper** linear-lanceolate, acute. Back of upper cor.-lip purplish.

* = sepaloïd bract.

** = calyx

- Cont. from p. 85 at bottom*.

About 8 miles from Dinkey Meadows, on our return trip towards Shaver Lake, I saw a remarkably vigorous clump of *Asclepias mexicana*, on broken ground, by the road. A very high altitude for it. Looked like an introduction. This must have been not far from Markwood Meadows.

Meadow just under north side
of Kaiser Pass, Fresno Co., Aug. 11.

No. 16,083. *Sambucus*

Low bush with red berries

No. 16,084. *Polygonum*

Colorizing a spot
of coarse sand, in a flat or
rather "bottom" of a water course:
in meadow, these tiny plants mark the loc-
ality.

No. 16,085. *Gentiana newberryi* Gray.

Kaiser Meadow.

No. 16,086. *Aster Andersonii*

Gray

This composite, with
lavender rays grows in the mead-
ows, semi-dry. Kaiser Mdw.

No. 16,087. *Prunus emarginata*
(Hook.) ^{Walc.} On rocky slope about
3 mi. easterly from the mdw.
named above.

No. 16,088. *Quercus vaccinifolia* Kelb.

Rocky slope; low scrub 3 to 4

ft. h.

With 16,087.

Aug. 11, 1931.
= Kaiser Mdw. = 7300 ft.

No. 16,089. *Veronica americana* L.

Cor. blue. In water

of a shallow streamlet.

No. 16,090. *Eriogonum sparganum*

var. *reddingianum*

This polygonoid grows

in dry granite sand on slopes

No. 16,091. *Gayophytum caesium*

5. + 9.

Dry granite

sand on slopes.

- Colony of Prairie Dogs in the
meadow.

- We climb to Kaiser Pass. In and
near the pass on the Huntington
Lake side are fine large
Juniperus occidentalis - unusually
large specimens.

Mountain slope ^{c. 7500 ft.} above Huntington
Lake, towards Kaiser Pass.

"No. 16,092. *Angelica lineariloba* Gray.
Rocky slope in sandy

granite soil, 3 to 4 ft. h. This
is a most striking object on
the open brushy slope covered
with a very scattered stand
of conifers. Its large dissected
leaves and heavy tho' few
umbels impress the observer.

"No. 16,093. *Monardella odoratissima*

Woody-based! the
persistent or over-wintering
stems about 8 to 11 in. long.
Rocky slope in sand soil.
Granite.

- *Sambucus*

A good deal on the slope
above Huntington Lake towards
Kaiser Pass. Same as 16,102.

Aug. 11, 1931.

- We travel past Huntington Lake and
take the sharp grade down to
Big Creek. In Big Creek cañon
near Big Creek village I see
Pseudotsuga taxifolia Britt.
Up the grade a bit I note *Lobis
cassifolius*. Cont. p. 99.

- *Cercocarpus parvifolius* was noted
on the hill between Big Creek
and Huntington Lake. I did not
notice it in the Fresno Grove
Big Trees region, nor in the
McKinley Big Trees region.

- even in hot country I do not
need water on the trail as
most other persons do. This
has been a matter of training
- not to do on little water - but
as to time of taking it. cf. my
note in "Men and Manners" note-book,
vol. 5, p. 73.

Medw. w. of road towards (half-way)
Shaver Lake Ranger Sta., c. 5600 ft.

No. 16.094. *Oxypholis occidentalis*

C. & R.

This umbellifer is now a striking object in the medw. by reason of its colonies and white flowers. The leaflets are unilateral and approximate as in no. 16.027.

No. 16.095. *Spiranthes Romanzoffiana*
Chen.

No. 16.096. *Senecio darkianus* Gray

Allophyllum integrifolium (Brand) A. & V. Crane

No. 16.097. *Gilia gilvipes* Greene.

Dry sandy ground.

No. 16.098. *Linanthus ciliatus*

Greene.

Dry sandy ground.

No. 16.099. *Graphalium pulsat*

Dry sandy soil.

No. 16.100. *Epilobium angustifolium*
L.

Wet medw.

Aug. 11, 1931.

— We drive past Shaver Lake, turn in
Cont. from top p. 97.

on the Sinky Medw. road about 3 miles
and camp in the Forest Service Camp
Ground (Swanson). Next morning we
run west to Pine Ridge (see p. 103).

— We stop for camp fairly early, about
5 o'clock but it is desirable to stop
earlier if possible. It is an illusion
to suppose that you can find a better
camp spot further along. One keeps
going and one is in the dark after
sunset, making camp under trying
difficulties. If one camps early, then
one has many enjoyments in the open
that otherwise fail you. One discovers
rare plants frequently at such times,
because one has time to browse or
to study the vegetation more care-
fully than when traveling. One
sometimes gets into very bad situations
traveling until nightfall. cf. p. 110.

No. 16, 100. *Asclepias eriocarpa* Bth.

Two colonies here very close together, each about 30 feet in diameter. The colonies rather dense. I take the colony in the road to describe, though the plants in both are quite alike in aspect and are plainly conspecific.

This one colony, then, is composed of plants undoubtedly arising vegetatively from a common stock by underground rootstocks. Not only is this obviously so, but in aspect, height, hue, character of leaves, inflorescence, ^{pedicels,} and flowers we plainly have one thing. There is no possible question that here we have one species and not merely one species, but one species of uniform aspect and character.

Still as one looks closely one can see differences in the stalks, in the inflorescences:

1. One terminal infl. but not bracted.
2. One umbel terminal and bracted, a whorl of umbels below it non-bracted.
3. Some plants with preponderance of leaves in 4's.
4. Some plants with very long internodes.
5. Terminal umbels 2, 3 below.
6. " umbel 1, 4 below.
7. " " 1, 3 below.
8. Inflorescence of 1 whorl of umbels.
9. Inflorescence of 2, 3, 4, or 5 whorls of umbels, the whorls often reduced to one umbel).
10. Eight umbels in a sub-terminal whorl.
11. Several terminal umbels, one becoming foliaceous and compound, the others remaining simple.

No. 16.102. *Sambucus*

The blue berries are now abundant, tho' many cymes are still in flower. The bushes, many stemmed, erect, 12 to 16 ft. h., are thrifty and present a fine sight. Colonies occur in protected areas, little used lots by farm buildings or fertile spots on the farms where fenced and guarded. Well-grown clusters, more common than seen elsewhere.

No. 16.103. *Arctostaphylos Marinosa* Dudley.No. 16.104. *Lesqueria*

Dry opens amongst scattered pine. Rays lavender.

No. 16.105. *Eriogonum roseum*
with 16.099.No. 16.106. *Chenopodium*

Dry open sandy flats amongst pines.

Aug. 12, 1931.

No. 16.107. *Herniaria*.

Open sandy flats, dry, amongst pines.

- We run westerly along Pine Ridge to the ^(see note p. 119, 297) Gressman School, thence we take the Tollhouse Road, leaving the Aubrey Road to our right. On this road we get a heightened idea of the fierce destructiveness of the fire ^{forest} which raged a week since over this region. We travel towards the end of the ridge or spur which is a different ridge or rather different branch of the same ridge from which the Alder Springs ridge originates. At the end of the ridge is a highly picturesque mountain road which loops down the side of the abrupt mountain and gives one an admirable view over the valley below, being
(cont. p. 104)

No. 16, 108. *Cephalanthus occidentalis*

This tree, the most remarkable ^{of this species,} for size that I ever saw, it seems to me, grows at the junction of the Tollhouse, Fresno and Friant roads, almost in the middle of the road. Its crown is 25 ft. in diam., 18 ft. high, the trunk 23 in. in diameter at 1 ft. above ground.

- Cont. from p. 103. the rolling valley in which is found at the foot of the hill the village of Tollhouse. It is remarkable in what way the people of this region used general terms for a settlement, ^{name} and got away with it: Northfork, of the hundreds of them, this is the Northfork, the one with the right to the

name officially! Tollhouse, similarly! Pine Ridge, similarly (!) except that there are thousands of pine ridges. Tollhouse is much more of a place, a village, than I expected. I pictured merely a toll house or what had replaced it. (past Tollhouse Cemetery) ^{See p.}

We continue westerly ^(see no. 16, 108) and eat-a-corner by country roads diagonally to Florence, leaving the Fresno road which we have been following. All through the country between Sparkville and the Indian Mission School and some miles west the reproduction of *Quercus douglasii* is striking. But the hills above Friant are utterly barren, - dead and lifeless at this season - and apparently support only annual vegetation.

At Friant we cross the San Joaquin River bridge and I notice the old free camp ground under the willows by the water's edge on the Madera shore is fenced in and no longer accessible to travelers except by payment of a fee. Cf. F.B. 47:486. We go on by Marysdale School past the north end of Little Table Mt., turn north on the Fresno-Coarse Gold road, turn back left on the first cross road and go down it to the Widanake Ranch (cf. F.B. 47:475), which we photograph. Thence to Madera, thence to Merced where we stop at the Farmers Market and buy a ^{cold} watermelon. It is a warm day. So turning off the highway into a shady lane we make mid-day festival and enjoy mightily the deliciousness ^{and} coolness of the succulent melon. At Lingard sta. I note *Wislizenia refracta* by the railroad in flower. We arrive in Berkeley at 6:30.

It is perhaps worth noting that the wonderful melon bought at Merced cost only 18 cents.

— Cont. from p. 91. What are the factors that determine the distribution of native species under natural conditions as opposed to the conditions governing distribution ^(or compared with) under conditions interfered with by man? *Echscholtzia californica* has a well-known range under natural conditions, ordinarily not going much above the Coast-hills. But at Lake Florence, by an old construction camp a few plants grow thriftily!

— Cont from bottom p. 81. Crossing the San Joaquin River at Lake Kirchhoff bridge, not far up the hill we pass a little valley where there is a ranch (Rogers ranch = Rogers Valley) ^{see F.B. 52:119} where I botanized so fruitfully in 1928 (see F.B. 47:324), but which is now hopelessly dusty and dry. The gas station man at Ambury gave me the name Rogers ranch.

No. 16, 109. *Sequoia gigantea*
Cones with seed. Aug. 7, 1931.
Fresno Big Trees.

No. 16, 110. *Sequoia gigantea*
Resin flow from an axe-
wounded tree. This flow was con-
siderable, and blackened a distinct
area on the lower part of the
trunk. Fresno Big Trees, Aug. 7, 1931.

Cont. from p. 109. [Newman to Hutter]

The ^(near Newman, its name) San Joaquin River is unknown
(bridge on the) to us.

The bridge over the Merced River
within 1 or 2 miles ^{I do not}
know the name. ^{near the Newman}
^{Bridge}

The bridge up the Merced River,
say 10 mi. in the direction
of and half way to Living-
ston, just south of Irwin
City is the Mellicom Bridge.

(cf. vol. 47, p. 360)

- Professor F. H. Faull, Dept. of
Botany, Harvard University, called
today. He spoke his high regard
for Dr. D. L. Robinson as a fine
dependable gentleman. He said that
in every case he informed M. L.
Fernald of any action to be taken
in regard to the Gray Herbarium
so that there could not in
any case be any "come back".
It is plain that he has not so
high a regard for Fernald as
a gentleman, and is a bit offish
with him. Professor Faull was
much taken aback to discover
that I was not in charge of
the University Phanogamic
Herbarium. I told him that I
had no official relation with
it! And remarked that Professor
Fernald had no official relation
with the Gray Herbarium. No,

replied Faull, but he spends all his time there! Apparently he never sits down but does all his work standing! [cf. vol. 50, p. 48] ^{Sept. 11, 1931.}

Re. vol. 50, p. 48, Faull remarks of our ^{present} mycological collections that there is a lack of organization. Faull was curious to know who ⁵⁰ Copeland was. He knew nothing of him, did not know he had a Ph. D. - Sept. 12, 1931.

- Cont. from p. 85 **. (cf. p. 99).

In the old days when we drove horses it was important to camp early - long before nightfall. It is just as important as ever from the standpoint of good field work and of pleasure in the country about one's camp, but I notice it is difficult to get the auto drivers to stop. They always want to go a little further. And then it falls dark. Energy is wasted making supper without light and there is a late start next morning.

No. 16, III. *Barex*

Forming a colony on the slope at head of Strawberry Cañon, north of the creek bottom, rather high up, and behind the hill which separates the upper cañon from the cañon of Strawberry Creek. It is, in the spring, a wet spot on the hill, not very steep.

- Mr. Gardner ^{E. Hart}, the nice young chap at the Berkeley Inn, who has to do with demonstration work in the Oakland schools, says that he went on a trip from Healdsburg to Searsville Pt. via Skaggs Sprs., stopping enroute at a logging mill (redwood) run by Earl Mercer. It is a two-man mill. Mercer "peddles" his product, ^{himself} delivering by truck as far as San Jose. All the birds have been cut off the

Redwood trees in these woods for commercial purposes. Hart thinks the birds grow again, judging from what he heard Mercer say. - Oct. 1931. The name of the mill man is probably, I later learn, Earl Merritt.

Alice

- Miss Eastwood says that she does not believe in publishing varieties, that no notice of them is taken by *Index Kewensis*, that if you want to get your work before the public, publish *binomially*, that there isn't any difference between a species and a variety anyway.

There are certainly high ideals for a scientist!! But Miss Eastwood is scarcely a scientist in the proper sense of the term, or at least not without some qualifications. Miss Eastwood feels, too, that her new species are a contribution [cont. p. 113]

- The Herbarium of the California Academy of Sciences has bought the P. B. Kennedy herbarium of Nevada plants, paying \$200.00 for it, acc. J. T. Howell. - Oct. 15, '31.

- In the new Life Sciences Building, Univ. Cal., Botany received 6 units floor space, Zoology 9 units. Botany has far more students than Zoology and equally extensive collections.

- On Saturday evening, Dec. 12, by special invitation I lectured on "Footpath Rights of Way" at the annual meeting of the Sierra Club in San Francisco at the Fairmount Hotel.

Cont. from bottom p. 112. in the sense that she calls attention to forms that might be overlooked. That is, she throws forth these new species, she says, as inviting attention, leaving it to some else to work them over in detail. - Oct. 1931. But she does not mean they shall be reduced!

— Mr. M. W. Falst called on me this morning. He is with the U. S. Forest Experiment Station in Berkeley, recently arrived. He will have to do with range and forage. He was on some such work in the "Southwest" for ten years, he says, with U. S. Forest Service. Then 2 yrs. with Coville at Washington, ^{the} ~~was~~ control work. — Jan. 5, 1932.

— M. E. Jones is here at the Univ. Herbarium working on Astragal_{us}.
^{E. O.} Copeland, who does not think highly of his critical ability, described the off-hand way in which he affixed determination labels to the Astragalus sheets; this is so and so, this is something else, running them rapidly off without carefully examining

them or even scarcely looking at them. — Jan. 26, 1932.

— Chas. Pifer Smith, the Lupinus specialist — I should scarcely say Lupinus expert — has married again. Re. death of his first wife and child see vol. 51, p. 48-49, ante. He has now married a widow with four children. September last. — Jan. 26, 1932.

— Dates of issue of Manual of the Flowering Plants of California. Those persons who are maliciously trying to question the dates of issue of ^{the} Manual of I will fail. The signatures were placed on sale at the associated students store on the dates indicated. C. S. Downes, head of the book department, vouches for this from his records. See his letter of December 3, 1931. Those who say

notice of these offerings should have been made are also informed. I noticed today one particular that I had ^{momentarily} forgotten: namely, that the Manual is advertised in the widely distributed Trees of California, before any Manual signatures were printed or published! - Printed circulars were also distributed. - Jan 31, 1932.

The above fact meets the claim that there should be "public announcement." I cannot think O.L. Robinson unfriendly, but he has been subject to insidious propaganda for twenty-four years and it would be remarkable if it had not even unconsciously influenced him. See Robinson's letter of Dec. 9, 1931. I also distributed presentation copies of each lot of signatures on the publication dates.

- We get all kinds of students. One, L.M. South, has come into Botany 113. He said to Miss E.H. Cunn, my research assistant, that it was his ambition to be able to name every plant in California and the U.S. at sight(!); that he could now name every species in Strawberry Cañon at sight(!). Since no professional botanist has ever been able to name every species in Strawberry Cañon at sight, the young man has a mental slant that is singular. It is mainly, perhaps, a huge egotism. - Feb. 5, 1932.

- *Photinia arbutifolia* Lindl. Mrs. Harriet P. Kelley gave me the following about 1919: "About 23 individuals in an area of several acres, Humphreys, Pine Ridge country." This Humphreys is a settlement near Black Mt. which

is s. or sw. of Pine Ridge in Fresno Co.

- *Chamaebatiaria millefolium* Maxim.

Spm. shown me by Kate Jared Stirring from McArthur, Shasta Co., prob. about 1910. (Copy of old record.)

- Dr. H. M. Hall died March 11, 1932, at Washington, D.C., following an operation for abdominal troubles (caused by cancer).

He was a man of ability and force and a man of highly attractive personality to most persons. He believed in praise as an instrument ^{personal} and ^{a few} of policy although there were ^{a few} persons of penetration or inherited refinement who were repelled by his ^{manner of praise} on the whole most people were strongly drawn to him, because he showered ^{compliment} very

will indeed, with an animation, good humor, flow of spirits and sally of wit that was quite engaging.

I. B. Babcock tells me there were three operations. Hall went to Washington in December to attend the annual conference of the Carnegie Institution workers. He was taken ill and an operation was performed almost immediately. Babcock thinks the trouble harks back to an operation for hernia about eight years ago. (c. Mar. 23, 1932).

- Place names in the Pine Ridge region:

- Ranch midway betw. Aubrey and San Joaquin River = Barnett ranch, acc. F. M. Suresley in litt. 3-19-32. Cf. p. 107 ante.
- School at forks on Pine Ridge = Creelman School.
- Ranch at turn of road above Aubrey and just below Carpenter's California station = Deal ranch. All acc. to Suresley, as above.
- Mono Ranger Hdw., what I called "Tourist Hdw." on the Vermillion Valley trip. cf. vol. 47, p. 4511

- Today, in showing some friends from Vaca Valley about the Campus, I took them up the Sather Tower. The Chinese Master fell into conversation with me and said that he as a young fellow had taught another young fellow, a friend of his to play the flute. This was in Pennsylvania and the friend was John H. Small, whose uncle was Thos. Porter, Professor of Botany at Lafayette College. He wished to know if Small was still living and still at the New York Botanical Garden. - March 26, 1932.

- *Mentzelia micrantha* T. & G.
 Eppersons, July, 1884, w. Colusa Co., Curran.
 Mt. Diablo top, June, 1886, V. Rathen.
 Cloverdale, July, 1885, T. Brandegee.
 Santa Barbara, 1886, Mrs. Bringham.

The above notes made at California Academy of Sciences Herb. about 1896. The label of the first noted in the hand of E. L. Greene.

- Prof. C. Singer of Oxford* University, lecturing here this term, just called to find out about desert flowering - in the Mohave. He saw E. L. Greene's portrait in the laboratory and immediately unburdened himself: "A man of fearful arrogance. That is if you differ with him. I should hate to work under him. His book, the Landmarks, is a good book. I use it a great deal."

- *Elatine* species in Cal. *E. americana* differs from the other two in its seeds (w. 2 areoles), but *E. brachycarpa* and *E. californica* cannot be segregated on the basis of seeds. *E. californica*, however, has pediceled fls. Continued from vol. 34, p. 66.

* Apparently London University at present.

Left 11 Masswood Road at 9 o'clock. Ran to Gilroy, thence over the Bolsa road. On the Bolsa, a great flat alkaline plain opposite the village of San Felipe (near the foot of Pacheco Pass), flourished for many hundreds of acres on both sides of this road a pure stand of *Lasthenia*.

no. 16.112 5 shining pure gold under a brilliant sun, literally a field of gold, resplendent, seeming as one stood with one's feet buried in the mass of flowers, to stretch as far as one could see. There seemed little else with it - nothing else so far as the eye was concerned.

Beneath it were perennial herbs to come into prominence later but not now visible: *Distichlis spicata*, *Atriplex* spp., *Galicornia*, *Tiza macrostema*. On the margins of this great unbroken sheet of yellow, there were great arms or extensions of the *Lasthenia* and here in the intervals one found other vegetation.

All the way from Gilroy, near Gilroy, and also near Hollister, I had noticed colonies of a white-flowering umbellifer in the richer moist fields. I took it for some garden truck plant, a hold-over from

previous years of cultivation. But, not so far from Hollister, a colony of it grew by the roadside as well as in the fields, and I saw at once that this so common thing was not an umbellifer at all - but *Lepidium Draba*, and that the circular colonies from 5 to 50 feet in diameter originated from underground propagation! As we went on we saw it again, taking extensive possession of the fields south of Paicines on the valley level. It is a fearful scourge. Cont. p. 179.

We drive on southward along the San Benito River. At a point about 1 or 1½ miles northerly from the Willow Creek School we are entranced by the painted hills that, ^{on the east side of the river,} came abruptly down to the river bottom, the shoulders and ridges gold with pure stands of *Mono-lopia* (no. 16.128) and blue with what we take to be a Lupine

all appearances *Lupinus albus*.
I manage to get across the river
on stones and as I approach the
great blue colonies I see that it is
not a *Lupinus*, but apparently *Pro-*
tea capitata. Not that, however.

for, when I come up to it nothing
less than tall pure stands of
Phacelia baccata (no. 16, 127)
greet me. It is a wonderful growth
- tall, pure, luxuriant, growing
in the friable adobe that is char-
acteristic of hill slopes in this
region. On the edges of it are luxur-
iant plants of *Thelypodium flav-*
escens Hook., - (an abundance of it)
Also luxuriant plants of *Microseris*
(no. 16, 129).

The beauty of these high-sloping
hills with their great color patterns
is almost thrilling - the swirls of
gold and of blue - the ribbons and

streamers and lovely natural areas stretch
so high and so far.

At the top of the highest point on the
main ridge we notice a cross.

Bolsa, e. of Gilroy, 233 ft.

San Clara Co.

No. 16, 112. *Lasthenia*

On the Bolsa, Gilroy.

Te. of

See p. 122 ante.

No. 16, 113. *Lepidium oxycarpum* T. & G.
with no. 16, 112.

No. 16, 114. *Lepidium draba* (L.) Desv.

cf. p. 123 ante. Bolsa near Hollister

No. 16, 115. *Monolepis nuttalliana*

Tree Pinos 515 ft.

San Benito Co.

Bolsa near Hollister

No. 16, 116. *Myosurus*

Winter pool beds. Tree Pinos.

No. 16, 117. *Lilaea* / *dummicoides* Jepson.

Winter pool beds. Tree Pinos

No. 16, 118. *Microseris douglasii* Douglasii

Tree Pinos. Dry flats.

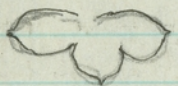
No. 16, 119. *Alibocarya acanthocarpa*

Piper. With 16, 118.

No. 16. 120. *Psilocarphus brevispinus* Nutt.
This gnaphaloid grows in the
beds of former winter pools. Tres Pinos.

No. 16. 121. *Downingia*

Upper lobes lanceolate, di-
vergent, lower lobes trefoil-shaped,



the corolla blue, the
white field in center
of lower lip large,
with a yellow center
"Platform", of lower
lip, at right angles
to tube. Winter pool
beds. Tres Pinos.

No. 16. 122. *Pilularia americana* A.Br.
(det. R. Tryon, '58)
with 16. 121

No. 16. 123. *Lepidium latifolium* Hook.
dry flat, Tres Pinos,

No. 16. 124. *Callitriche marginata*
Torr.

Tres Pinos, beds winter
pools — where water formerly stood.

No. *Filala subulata* H.B.K. with 16. 121.
↑ 16. 124a

From the station where we collected so
bountifully, p. 124 ante, we drive past
the Willow Creek School and start up grade
southward from Willow Creek, leaving the San
Benito River,

coming out at the top into Bear Valley
where is Pinnacles P.O. From here and
all the way along, we see great sheets of
color. *Monolopia* is in
great abundance on the shoulders of the hills
on the easterly sides of the valley. The
valley flats have in them "lakes" of *Phacelia*.
"16. 127."

Mar. 31, '32. Willow Creek School, 1 mi. n.e. of.

No. 16. 125. *Baeria*

Dry flats.

No. 16. 126. *Thelypodium flavescens* Wats.
Cor. whitish-cream. Steep hill slope, friable clay.

No. 16. 127. *Phacelia tanacetifolia* Bth.
See p. 129. with 16. 126.

No. 16. 128. *Monolopia*
with 16. 126. See p. 123 ante.

No. 16. 129. *Microseris heterocarpa*
with 16. 126.

^{Little}
 No. 16, 130. *Amsinckia tessellata* Gray.
 Willow Creek School.

No. 16, 131. *Ellisia membranacea* Nutt.

^{Little} Rabbit Valley Moist loamy hill slope.

No. 16, 132. *Linum douglasii* B. Gr.

Forming great creamy
 lakes - a chain of them, in
 low swales in ^{Little} Rabbit Valley. At a
 distance seemed like cream cups,
 but the white of the corolla
 with its lower half yellow, at a
distance, gives cream!

No. 16, 133. *Thelypodium flavescens*
 (Hook.) Wats. Considerable colony on
 steep hill slope, the area colored
 with it - five or six acres. Rabbit
 Valley. ^{Little}

No. 16, 134. *Tropidocarpum gracile*
 Hook. Common; grassy flats. Rab-
 bit Valley. ^{Little}

From Bear Valley we climb over a ridge
 and down into Rabbit Valley, the fork of
 the road to San Benito village being near the
 foot of the grade. In Rabbit Valley for
 many miles we get wonderful lakes
 of flowers on the valley flats. One flat
 is tinted blue so evenly and finely that
 one could pass it for a lake of water if
 told so. But it is *Phacelia tanacetifolia*
 Bth. (No. 16, 127). On the opposite side of
 the road in better soil it grows more
 luxuriant, but vast areas, with great
 fields of gold *Barria* and *Lathyrus*
 on its borders.

- Cont. from p. 122. This area is locally
 known as the Bolsa, in abbreviation for
 Bolsa de San Felipe, the Spanish Grant.
 Bolsa means a vein of the purest gold
 in a gold mine; and I am inclined
 to guess that this golden-flowered area
 on the great plain which I described on
 p. 122 may well have furnished the name
 for the Spanish Grant, because it is a
 phenomenon appearing nearly every spring.

- Bitterwater School (N. end) 1450 ft. Old Tully School (S. end).
 No. 16. 135. *Ranunculus lebeocarpus*
 Open woods, Bitterwater School.
 No. 16. 136. *Ausimckia intermedia* F. & M.
 Bitterwater School.
 No. 16. 137. *Lasthenia minor*
 Bitterwater School.
 No. 16. 138. *Lepidium nitidum* Nutt.
 Bitterwater School.
 No. 16. 139. *Ausimckia intermedia* F. & M.
 Bitterwater School.
 No. 16. 140. *Pectocarya panicillata* A. D. C.
 Apr. 1, '32. Dry flats. Old Tully School. 1030 ft.
 No. 16. 141. *Ausimckia intermedia* F. & M.
 with 16. 140
 No. 16. 142. *Ausimckia spectabilis*. No. 16. 142.
 douglasiana? Making large deep orange
 spots on a sliding friable clay or
 soft sandstone talus. Old Tully
 School; 1030 ft. See p. 131.
 No. 16. 143. *Ceanothus divaricatus* Greene
 See p. 131. 1030 ft. Gravelly flat, Old Tully School.
 No. 16. 144. *Festuca reflexa* Buckl. (det. B. Crampton,
 3/76)
 Old Tully School. This grass on dry sandy flat.
 No. 16. 145. *Platystemon californicus* Benth.
 See p. 132. Lewis Creek, betw. Old Tully and
 near pumping station, near Garcia ranch, School
 Priest Valley. A field of it c. 1500 ft.
 No. 16. 146. *Phacelia ciliata* Bth. var. n.
 c. 1500 ft. See p. 132. With 16. 145.

Out of Rabbit Valley we come into Bitterwater
 Valley and camp over night in the
 school yard of the Bitterwater School,
 the evening of March 31. It is cold
 in the night and the next morning,
 All Fools Day, we find ice in our
 water kettles!!

Prunus ilicifolia grows here.
 We get off from ^{camp} the road, at 7 o'clock.
 Drive southw. to Old Tully School, turn off
 the main road * (see p. 133) into the road that runs
 up Lewis Creek. On the shoulders of the
^{across Bitterwater Valley,} hills opposite Old Tully School, great
 banners of *Monoelopia*
 are spread. This is undoubtedly Mono-
 elopia country!! within about 2 mi. s.
 from the school we botanize a hill
 slope where *Ausimckia spectabilis* (no. 16. 142)
 with orange flowers is abundant in
 a colony on rotting sliding sandstone.
 On the flat is *Salvia corduacea* Bth.
 and *Ceanothus divaricatus* Nutt. (no. 16. 143).

its branchlets remarkably white, the whole bush closely covered with its panicles of pale blue fls. On the flood plain floor of Lewis Creek there is some scattered *Eriodictyon tomentosum*. Also *Populus fremontii* Wats.

Near the Garcia ranch, half-way up the creek, or about that, we stop to look over a great valley field white with cream cups (*Platystemon californicus* Bth., no. 16,145), and blue with *Phacelia ciliata* Bth. (no. 16,146). A little further along we see a lavender area, ^{sharp slope} on the base of the hills and conclude that the color betokens something different. We go across the field to it and find that it is *Phacelia douglasii* Torr. (no. 16,151), another species, but colonizing also.

- No. 16,147. *Phacelia ciliata* Bth. Garcia ranch. With no. 16,146.
 No. 16,148. *Plantago*
 Garcia ranch. With 16,146.
 No. 16,148a. *Phacelia douglasii* Bth. Garcia ranch.
 No. 16,149. *Psilocarphus tenellus* Nutt. var. *tenellus* Gnaphaloid. dry flat. Garcia ranch.
 No. 16,150. *Oenothera graciliflora* Torr. dry hill slope. Garcia ranch.
 No. 16,151. *Phacelia douglasii* Torr. on moist hillside, forming a lavender spot. cf. p. 132. Garcia ranch.
 No. 16,151a. *Linanthus* ^{androsaceus} ~~parviflorus~~ Greene. With 16,151. Cor. white, fading lavender.
 (Monterey Co.) Priest Valley (at schoolhouse), 2200 ft. *dictyota* Jeps.
 No. 16,152. *Barberris californicum* Jepson. See p. 134.
 No. 16,153. *Ribes aureum* Pursh, var. *gracillimum* Jepson. See p. 134.

* Cont. from p. 131. The "main road" turns to right and goes southwesterly to King City. Shortly after the road fork to Lewis Creek there is, after about 4 or 5 miles, a left hand fork off the "main road" running southwesterly along Peach Tree Valley and, crossing Stone Canon, ends at last at Parkfield. The road up Lewis Creek crosses and recrosses Lewis Creek so that my plants may be either San Benito Co. or Monterey Co., as the county boundary line follows the creek.

- See the way up Lewis Creek (see p. 132) we find ever renewing delights in the oak-covered hills with their illuminated mosaics of *Baccharis* and *Phacelia* and *Mimulus*. Then at last we come into Priest Valley (see p. 133). Right by the Priest Valley school is a hillslope, rocky with loamy surface soil, covered with a thicket of *Berberis californicum* Jepson*, *Ribes aureum* var. *gracillimum* Jepson (no. 16, 153) and *Amelanchier alnifolia* Nutt. var. The *Berberis* is in full flower, covered with flowers and is the first time I have so seen it - that is so profusely, so abundantly. It is very erect, 6 to 8 ft. high. The *Ribes* is 4 to 5 ft. high; flowers odorless.

* No. 16, 152

Upper

- No. 16, 154. *Lepidium nitidum* Nutt.
grassy flats, 1700 ft.
- No. 16, 155. *Linanthus bicolor* Greene.
1700 ft. valley flats.
- No. 16, 156. *Phacelia ciliata* Bth. (see below).
1700 ft. It is often the dominant species in a cultivated field and seems to take well to grain field or any field cultivation; adapts itself successfully. There are "lakes" and "lakes" of it on upper Waltham Creek on the valley flats. See below.
- No. 16, 157. *Immature* *Microseris californicus* F. & M.
This grapholoid green in same loc. as 16, 156, on dry flats. 1700 ft.
- No. 16, 158. *Layia platyglossa*, ssp. *compositistachya*.
1700 ft. on hillslope near no. 16, 156.
- No. 16, 159. *Nemophila pedunculata* Dougl.
with 16, 156 in field, the underside of the plants heavy with mature capsules. 1700 ft.

- Cont. from p. 134. -

We drive on up Lewis Creek from Priest Valley and through the little cross divide of tiny hills, that marks the head of Lewis Creek from Waltham Creek on the other side, by a deep road cut, ^(through the tiny ridge) drive down Waltham Creek with the eastern hills all aglow with yellow, hill sides and shoulders and slopes; or the valleys fine with *Phacelia ciliata* Bth. (no. 16, 156), to a

point near an associated oil pumping station where we lunch, put up a tent and fill the presses with dried and folders.

Up a little gulch, ^{at this point,} or a steep northwesterly slope*, very thinly set with oak, is a colony of *Thelypodium lammonii* Greene. It is a distinct colony on the friable adobe, the individual plants a foot or two, or several yards on the average, apart. Just coming into full flower, that is in the beginning of its flowering season.

No. 16, 160. *Thelypodium lammonii* Greene.

See p. 168. For loc. see above.

No. 16, 161. *Gilia tricolor* Bth.

It colors the hills here at the lunch place. See above.

No. 16, 162. *Montia Claytonia spatulata* Dougl. s.
On steep soft slope with no. 16, 160.

No. 16, 163. *Eschscholtzia*
annual. Steep sandy slope.

* friable white-chalk clay, such as found elsewhere for this species.

We drive on down Waltham Creek and turn sharply back to the right on the Parkfield road. Near Jacalito Creek, we collect *Baeria* (no. 16, 165)

which colors the flats and slopes yellow. We cross the stream bed and begin to climb ^{up and} over the Diablo Range. It is a highly picturesque country that we travel over, and as we get higher, there with rugged rocks lifting sharply high out of the terrain

is a fine prospect northward - Centin Peak and the higher and more imposing rugged mass of ^{5 mt.} Hepzadan.

Eastward we overlook a vast area of ridges and hills, sterile, barren, unspeakably seamed and gullied and scarred - without green, without even scattered trees. And then the shadowy level of the San Joaquin Valley with the snowy crests of the Sierra

Nevada in the air beyond, lying like a pure white tracery above the far eastern horizon.

About $\frac{3}{4}$ the way to the top we stop on a serpentine rock slope to gather *Fritillaria succulenta* Elmer (cf. p. 141). It has a nearly globose (in outline) perianth in the beginning, dark purple-brown. As the perianth ages the shape changes; it becomes somewhat cylindric; meanwhile the color changes, becoming a dark or dull rose - but a very distinctive color - aging eventually into a dull brown, the tips of the segments of the perianth becoming nearly erect, not recurved as in the initial globose stage. The foliage is extremely glaucous, and gives the plant a distinctive appearance in itself. We find here a colony of it about

80 x 120 feet. Further up grade we see another colony of about the same size. The odor is nauseous or sub-naphthalic.

✓ No. 16, 164. *Lupinus* ^{*subvexus*} ~~*microcarpus* Sims.~~
c. 1450 ft. Upper Waltham Creek
with no. 16, 161.

✓ No. 16, 165. *Baeria*

1500 ft. Covers large areas with a fine stand on the flats and low slopes, upper Jacalitos Creek, where the Coalniza - Parkfield road crosses the stream. Wading through the flowers of these meadows, the individual *Baeria* standing as thickly as a "pile" of velvet, almost, my shoes are made golden by the pollen dust, so great is its abundance. See p. 137.

✓ No. 16, 166. *Athyrium pusillum* Greene.
S. slope. Open hill slopes, Diablo Range.

- At the top of the range, rather near summit, occurs *Pinus coulteri*.

✓ No. 16, 167. *Stylocline graphalioides* Nutt.

This gnaphaloid grew on open rocky slopes, Diablo Range. With no. 16, 168.

✓ No. 16, 168. *Fritillaria succulenta* Elmer.

See p. 141. Rocky slope, serpentine outcrop, only on the serpentine. See locality, p. 138. E. slope.

✓ No. 16, 169. *Ribes quercetorum* Greene.

Peak, Monterey Co.
Near Mustang, Diablo Range, W. slope. Forming small thickets on rocky shoulders. Bushes rounded, 4 to 5 ft. high, stems much involved on account of regularly horizontally-arching branches!! See p. 167.

From the Diablo Range, (p. 137 ante) we travel down grade and through the charming oak-studded valleys to the almost deserted village of Parkfield and camp in the village under the great arching oaks tenanted by numerous woodpeckers busily summoning everybody to play and holiday with their jaunty rasping notes. All the year arounders, these are old friends always to be counted on as giving us a welcome at Parkfield. We have hardly well established our camp before our old-time friend Jack Greenlough appears to recount once more the anecdotes of the old-time days when Parkfield was in its heyday as a prosperous country village.

What a delightful valley! The great oaks! The wooden hills

closing it in! The great blue field* stretching out beyond the village to the east side foothills, the delicacy of the shade giving its proper tint to Phacelia* 30 acres.

(No. 16, 170). ciliata Bth.

No. 16, 170. *Phacelia ciliata* Bth.

See above. One individual has thrown quite white flowers.

No. 16, 171. *Orthocarpus**

1600 ft. On the low hills by the village.

No. 16, 172. *Plantago*.

Low hills by the village; 1600 ft.

No. 16, 173. *Plagiobothrys nothofolius* Gray.
1500 ft. Flats by the village.

No. 16, 173 a. *Orthocarpus attenuatus* Gray.

— *Fritillaria succulenta* Elmer. See p.

139, no. 16, 168. The glaucous character is lost in drying. I

have written this *F. succulenta* Elmer but the matter ^{in field} needs critical examination.

— *Chenopodium californicum* Wats. Parkfield, common, and all through this back hill country.

* Paints the hills in this region purple

next morning we botanize a bit about the village, in the lovely Phacelia field and the low undulating hills. Near the lower end of the Phacelia field are two very large *Quercus lobata*, removed from each other and a little apart from the main grove of oaks. One of these, nearer the village, we measured:

At ground, circ. = 24 ft. 3 inches.

At 4 ft., circ. = 17 ft. 10 inches

Diameter crown = 106 ft.

Height = 89½ ft. (as measured by shadow.).

- From Parkfield we run south into Cholame Valley and botanize on the alkali flats near north end of the valley plain. Great sheets of gold cover the plain (Curt. p. 144).

Cholame road sta. See opposite.

- Near Cholame. *Astragalus* no. 16, 190.

Great clumps; stipules meeting or nearly opp. side of leaf, long-pointed and very closely erect.

- In same locality as no. 16, 190, but on hillside grew *Astragalus* no. 16, 191, with ascending stems or at first trailing. Cor. pale greenish-white. Stipules not extending around stems, triangular, acuminate, reflexed.

No. 16, 174. *Lepidium* ^{c. 1400 ft.} ~~dictyonum Gray.~~ *alkalium* flat.

No. 16, 175. *Stellaria nitens* Nutt. ^{Caryophyll on alkaline flat.}

No. 16, 176. *Microseris elegans* ^{alkaline flat.}

No. 16, 177. *Lupinus* ~~*microphyllus*~~ *bigelowii* var. ^{Subalkaline flat.}

No. 16, 178. *Agoseris heterophylla* ^{Colonies coloring extensive areas of the flats.}

No. 16, 179. *Microseris campestris* ^{Subalkaline flats.}

No. 16, 180. *Lasthenia* ^{See p. 144. Subalkaline flats.}

No. 16, 181. *Baeria* ^{See p. 144. Alkaline flats.}

No. 16, 182. *Lepidium oxycarpum* ? & g. ^{Alkaline flats.}

No. 16, 183. *Tropidocarpum gracile* Hook. ^{Grassy flats.}

No. 16, 184. *Microseris campestris* ^{Cochiarid on the flats.}

No. 16, 185. *Lepidium nitidum* Nutt. ^{Essentially pure stand in lower Cholame Valley over large areas. Over a tract 4 by 2 miles it is the dominant. See p. 163.}

1154 ft. Cholame, San Luis Obispo Co.

No. 16, 186. *Oenothera contorta* Dougl. ^{Sandy flat}

No. 16, 187. *Platystemon californicus* Benth. ^{With a large yellow wedge-like in center and top of whitish petal. Sandy flat.}

No. 16, 188. *Phacelia douglasii* Torr.

No. 16, 189. *Gilia tenuiflora* Bth. ^{See p. 164. Coloring a field blue! in flat near Cholame.}

No. 16, 190. *Astragalus* ^{on dry flat. See p. 142.}

No. 16, 191. *Astragalus douglasii* Gray. ^{On hillside. See p. 142.}

146

Yeguar Hills, Elw. Choice Valley
and the Carrizo Plain, sw. of Yeguar Mtn.
of Geol. Survey sheet Choloma. See p. 168.
c. 1650 ft.

No. 16.202.

This composite is dominant on
about 5 acres south west slope, in the hills
some 3 miles southerly from Choice Valley school.

No. 16.203. *Thelypodium lemnorii* Greene.

Same locality as 16.202, occupying
several acres on the hill just south
and adjoining; the two plant areas
indefinitely separated by a gully. This
series of spurs show flowering areas
with closely erect pods, other areas
with reflexed pods, other areas with
spreading pods. See p. 169.

The flowers are delicately and sweetly
fragrant.

[On upper Waltham Creek (cf. no. 16.160)
I noted that the lower pair of petals
spread a little right and left, the upper pair
a bit divergent and turned backward. See p. 168.

No. 16.204. *Thelypodium lasiophyllum*
(Discarded)

Fls. large, petals clear white; ^{hill tops.} racemes
in fl. very dense.

No. 16.205. *Layia munzii* Keck
of the hills. Rolling plain

No. 16.205a. *Peucedanum carniifolium*
T. & G. One of the most conspicuous
and wide spread of the plants of these
open hills. = *Lomatium utriculatum*
C. & R.

Carrizo Plain, San LuisObispo Co., 2200 ft., Apr. 3, 32.

147

As we run south, I notice ^(insert * p. 151) on the
flowery plain ^(after leaving the Yeguar Hills, p. 146) near the wagon
trails colonies of a *Streptanthus*,
which on account of its purple
terminal spot or signal banner

I suppose to be dwarf *Streptanthus*
calteri, growing in little sandy flats.
We stop and after a moment's ex-
amination I see that it is the
long-sought *Stemfordia californica*
- not seen in all these dry years

past. It forms distinct little colonies,
10 to 40 feet across, the plants in
portions ^{of the colonies} growing very thickly. See p. 152.

It has a very distinctive corolla
which is immediately pendulous.
Sepals strongly carinate, - whitish on
lower half!, yellowish-brown on upper
half. Corolla not exceeding sepals
or scarcely, the petals typically
streptanthoid, narrow, wavy-mar-

lined, greenish-yellow with narrow white ward margins; upper pair spreading right and left, lower pair approximate, parallel, turned downward. Stamens all distinct.

Pods strongly obcompressed! in some cases more flattened than in others, deflexed, a little curved or sometimes straight on same axis; in other plants pods closely erect; in other plants pods spreading; in other plants some pods ascending, some deflexed on same axis.

Plants branched low, at the ground or a little above with ascending branches, the axis not especially dominant, that is on same order as a branch in size and development, a typical plant thus with 4 or 5 spreading branches. Habit, thus, totally different from *Streptanthus calceolatus*. The buds are especially worth not-

ing: Buds large, deep velvety purple, strongly 4-angled or 4-winged.

--Cont. from bottom p. 145--

as much country we have passed over, but they have with their glowing colors a quiet beauty - calm, restful, peaceful, - scarcely a cañon to upset the flow of evenness. *Pinus* *spectabilis*, large colony at Grant Lake. (= *A. douglasiana*).^{of} There in this pass are some more sober colors: *Lepidium nitidum* colors the hills reddish. The upper side of the pods color red-brown.

No. 16.206. *Baeria*

Alkaline plain, colony

extensive areas; wherefore the "gold lakes."

No. 16.207. *Phacelia ciliata* Bth.Coloring the high parts of
the plain, that is the hilltops of
the hog wallows. Same locality as
No. 16.206.No. 16.207a. *Delphinium gypsophilum* X*D. recurvatum* Petals pale, recurving-rotax,
hybrid derivatives from this cross.No. 16.208. *Phacelia fremontii* Torr.

Alkaline flats.

No. 16.209. *Boreopsis calliopsidea* Bol.Coloring a hill slope near
Soda Lake.No. 16.210. *Poa scabrella* (Thurb.) Benth. ex Vasey
(det. B. Crampton, 3/76)

This grass is frequent

and a scattered dominant in the
plain south of Soda Lake. It is
fairly conspicuous on account
of the scant vegetation. It
gives a brown cast to the locality.

Apr. 3, 1932

No. 16.211. *Festuca reflexa* Buckl. (det. B. Crampton, 3/76)

This grass in the same

locality as no. 16.210

No. 16.212. *Astragalus lentiginosus* var.
nigricadensis Jones.Cor. greenish-yellow, the greenish
east marked; fading dull white. Soda
Lake, Carrizo Plain.No. 16.213. *Astragalus oxyplegus* Gray.Clumps very erect; flowers
long and narrow. Soda Lake, Carrizo Plain.

* Cont. from p. 147 at top.

we stop first south of Simmler
on the plain and collect nos. 16.206
to 16.208. Near Soda Lake we turn
to right around a low hill and
collect no. 16.209, and 2 miles
further south, on the plain, nos.
16.210 to 16.213.

- No. 16, 214. *Stemfordia californica* Wats.
Re. discovery of this locality see p.
147 ante. See p. 153.
= *Streptanthus californicus* Greene.

No. 16, 215. *Thelypodium lasiophyllum*
With no. 16, 214.

No. 16, 216. *Thelypodium lasiophyllum*
With no. 16, 214.

Fls. large; racemes dense; corollas clear
white.

No. 16, 216 a. *Pectocarya paniculata* A. N. S.
~~var. heterocarpa Jtn. (P. heterocarpa Gray)~~

No. 16, 217. *Eriogonum Congdonii* Gray.
Composite det. RCB
Aug 2, 1958

- *Stemfordia californicum* Wats.

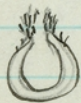
- A pair of ravens roosted near
the road.

- *Stemfordia californica* Wats. After
leaving the spot where we found no.
16, 214, we run into colonies of it
again in a mile or two. These
colonies are $\frac{1}{2}$ to 9 inches high
plants on the average. One colony
 $\frac{1}{8}$ mile wide.

- At the point where we collect no. 16, 214,
Stemfordia, we lunch and change driers
in the preses. Here we have an extended
view in every direction over the valley,
and especially of the long golden
lake of *Careopsis calliopsidea*, no.
16, 223. About 2 o'clock the flower heads,
which follow the sun, are turned di-
rectly towards us, increasing the dis-
tressing brilliancy of the great
colony.

Scarp, 2100 ft., San Luis Obispo Co.

Apr. 3, 1932.

No. 16.218. *Allium Howellii* Eastw.
det. M. Ownbey 1950.Colony on the plain, just
coming into flower. Per. pale purple.Crests on back of each
ovary-lobes, lacinate towards and
at apex.No. 16.219. *Thelypodium lemnosum*
Greene. Colony on the plain.No. 16.220. *Layia heterotricha* (DC.) H & A
Rays clear white.No. 16.221. *Phacelia*
Cor. deep blue.

Forms a "blue lake"

= *Eremalche*
Malvastrum exile GrayNo. 16.222. *Sphaeralcea exilis* Jepson.
Low flats.No. 16.222a. *Atriplex*Bushes rising out
of the gold sheets of *Coreopsis*
calliopsidea Bol.No. 16.223. *Coreopsis calliopsidea*

(DC.) Bol. This is the species

that forms broad almost continuous
sheets of gold on the lowest
part of the plain, that is, on the
east side. These sheets are $\frac{1}{4}$ to 1mile long or more, quite dazzling
under the brilliant sun. There isthus a band of gold now lying
on the east side of the plain
which is $\frac{1}{4}$ to $\frac{1}{2}$ mile wide, some-
times spreading westerly over thehigher parts of the plain to two or
three miles in width, the band about
18 miles long from northwest to
southeast. One sees, or noticeslittle, in the densest part of the
areas but ray petals; petals often
touch flower to flower; that is,
foliage parts, stems, are inconspicuous.
cf. p. 153 ante.

No. 16, 224. *Streptanthus inflatus*
Greene.

- We run south on the Carrizo plain (cf. p. 147 ante) and finally turn across the plain and enter a little gully of the Elkhorn Scarp, the road leading up to the Elkhorn plain. At the foot of the hills, on the flat, *Streptanthus inflatus*, is abundant, its purple tops rising above the general vegetation. As we enter the gully a south hillside, sandy clay, steep, of friable soil is rich with flowering vegetation, *Streptanthus* - (Cont. p. 171).

No. 16, 225. *Phacelia fremontii* Torr.

Cor. = tender *Nemophila* fls.

Blue. Sandy hillside.

No. 16, 226. ^{Eremalche} *Sphaeralcea exilis* Jepson

Sandy hillside.

No. 16, 227. *Mentzelia affinis* Greene.

Corolla a pale or somewhat buckskin yellow, turning gold on drying. Hillside.

No. 16, 228. *Oenothera dentata* Cov. var.

Hillside. Cor. clear deep yellow.

No. 16, 229. *Mentzelia* ^{*nitens* Greene} ~~*eremophila* Greene~~

Corolla pale orange. Cor. orange-red, a singular and very interesting shade. Abundant here. Hillside.

"Pale orange", means above just orange, but not dark orange or gold-orange. See p. 172; also p. 160.

No. 16, 230. *Oenothera alyssoides* H. & A. var. *decorticans* Jepson. Hillside.

No. 16, 231. *Gilia tenuiflora* Bth.

Hillside.

No. 16, 232. *Chaenactis*

Hillside

No. 16, 233. *Erysimum* ^{*E. capitatum* (Dougl.) Greene} *asperum* DB. Cor. clear yellow, then or slate-cream

quickly becoming dull white / white fls. are still in anthesis. Extensive colony of several miles on the mesa above the Elkhorn Scarp, the individuals rather widely scattered for the most part. See p. 172.

- *Streptanthus inflatus*

On the flat (cf. p. 156) where it is so striking, one of our party says "Oh, how funny they look!"

Indeed the plants have something of the qualities of harlequins in the midst of the general more usual forms of plant life: 1. The unbranched axes. 2. The striking purple cap at top. 3. The inflated stem, very suggestive of a circus clown's distended body. 4. The yellow stems. 5. The green leaves.

Certainly these plants are very unusual types in our vegetation.

Flowers: upper and lower sepals winged dorsally, the two lateral only a little winged. The ^{floral} bud, therefore, is 4-angled, but longer than in *Stanfordia*, but of much the same type however.

No. 16, 234. *Filago californica*

Gnaphaloid, in brushy country, clay soil

No. 16, 235. *Aussinkia intermedia*
Fl. & M. with 16, 234.No. 16, 236. *Makcothrix coulteri*

Heads pale yellow, ^{in fl.} rather small. Clay soil. See p. 162.

No. 16, 237. *Salvia carduacea* Bth

Sandy spots. Initial erect simple flower stalk glaucous first, arising from a flat rosette. Later 4 additional stems arise in pairs from the axils of the basal leaves. These stems are at first perfectly prostrate, 3 to 6 in. long before ascending each bulbous dilated at base. Later as they elongate, they become ascending, develop flower whorls. Is that a plant (Cont. p. 174)?

No. 16, 238. *Prologiothrys canescens*
Bth. Stems diffusely decumbent.No. 16, 239. *Atriplex*

5 ft. h. round bush. This is the characteristic species on the west side plain of the Great Valley (San Joaquin)

from here north to Tracy. It is not continuous, but Glen makes broad colonies as far as one can see; in other places with only scattered individuals along shallow arroyos or surface

flood streams. See p. 173.

- A "brick-red" hill nw. of McKittrick must mean colonies of *Montzelia*, no. 16, 229, I take it, same as

✓ No. 16, 240.

This *grophaloid* colonies sandy spots.

✓ No. 16, 241. *Lycium cooperi* Gray.

Banks of winter flood-streams. Rounded bush, thickly branched, 5 ft. h., 9 feet broad.

- In the high hills to the west we see brick-red slopes thought perhaps to be caused by *montzelia gracilentia* (cf. no. 16, 229).

✓ No. 16, 242. *Sphaeralcea exilis* Jepson.
= *Malvastrum eremalche*

Colorizing sandy spots,

luxuriant colonies.

Journal? Very abrupt country; what is the great mt. west of prominent landmark?

✓ No. 16, 243. *Hemizonia pallida* Keck

Kern Co. - McKittrick. This radioid plant is now rather showy. ^{See p. 175.} Sandy spots

✓ No. 16, 244. *Matricaria*

(County = Kern). McKittrick. Sandy flats.

✓ No. 16, 245. *Malacothrix californica*
Kern Co. - Belbridge.

✓ No. 16, 246. *Oenothera*.

Kern Co. - Belbridge.

✓ No. 16, 247. *Astragalus oxyphysus*
Gray. Devil's Den, ^{road sta.} on the plain.
c. 600 ft.

Plants erect, stems many; clumps compact, ^{erect, erect.}

✓ No. 16, 248. *Lepidium* ^{= *Cardaria*} *Draba* (L.) Desv.

Firebaugh, by rr. track - usual

type of colony. Also noted in a field (cultivated, not waste) to right of road as we ran north; in

Firebaugh district. c. 150 ft.

^{sp. discarded}
✓ No. 16, 249. *Microseris douglasii*
subsp. douglasii
(det. K. Chambers, 1956) Firebaugh; adobe soil; open plain. c. 150 ft.

✓ No. 16, 250. *Monolepis nuttalliana*

This chenopodiaceous

Plant grows in low land near one of the sloughs.
(Discarded, insect damaged)
No. 16, 251. *Lasthenia*

Firebaugh. Marshy flat.

No. 16, 252. *Lepidium perfoliatum* L.

Along highway as a roadside weed near Firebaugh. Perhaps a dozen plants noted.

- *Lepidium Draba* L. whitens fields at Los Banos.

- For brief summary of this trip see my letter to Miss A. L. Waterman, Apr. 7, 1932.

- Cont from p. 159, no. 16, 236. The heads in anthesis were much smaller in diameter than I was expecting to see. I am reminded, by analogy, of *Agoseris plebeia* Greene, though ^{heads} not so narrow as in that species.

- Cont. from below middle, p. 144.

on west side of road is golden with *Monolopia*, yellow with ^{douglasiana} *amarnikia*, red-brown with *Orethocarpus purpureus* ^{aff. lins.} and its purple undertones - and over this flowery field runs a wagon-trail and disappears in the bushes.

In the lower part of the Cholame Valley ^{= San Luis Obispo Co.} the flat is covered with a dense growth of *Lepidium nitidum* Nutt. (no. 16, 185). Never have I seen so much of it and in pure stands. It stretches as far as one can see. Its development is here finer, more luxuriant than I have ever known it elsewhere.

At Cholame road sta. we stop to take on gasoline for the car and go on, turning off the main highway to the left, on the road into Prieto Cañon, an open cañon with mostly bare hills. Near the

point where we turn off, we stop to botanize in the flat along Cholame Creek. In the flat is a blue, dark blue, *Gilia*, no. 16,189, which covers a field 300 yards long by 60 yards wide. This is a pure colony. It has adapted itself to, has taken advantage of, a cultivated area. At this locality, near the bridge across Cholame Creek, on northerly side, we collect nos. 16,186 to 16,191. ^(See p. 175.)

Thence we go on into Palo Prieto Cañon and collect nos. 16,192 to 16,199. *Thelypodium lemniscum* is here in a colony which is very conspicuous on the hillside 200 yds away from wagon road. It covers several small hill-tops and extends half-way down the slopes. It forms a regular "forest", nearly

pure, quite dense, 2½ to 4 ft. high. Petals spreading equally, almost rotately, the sepals (amazingly linear!) quite ^{stiffly} rotate and cruciform, spreading in the intervals of the petals. Stamens divergently spreading, none approximate or in pairs — showing no crucifer trait in this. This stand is indubitably of one age. It came into flower at one time. The plants are plainly of one blood, one related group, with a common aspect. They look alike, have the same characters of foliage, inflorescence and flowers. The flowers run uniform without any perceptible variation. Habit is the same. I note as to pods, plants with the following conditions:

1. Main flowering axis of some

plants with spreading pods!!!

2. Main axes of some plants with ^{↑ flowering} reflexed pods!!!

3. Main flowering axes of some plants with ascending pods!!!

This condition recalls *Thelypodium lasiophyllum*, i.e. as to pods. The flower of *Thelypodium lewmonii*, the parts spreading from the very base, is however, a very different sort of flower from that of *Thelypodium lasiophyllum* in which the perianth parts approximate to form a "tube" before the limbs spread.

I wish to repeat: the individuals of the above-noted colony were quite alike in general height, branching, hue, aspect, leafage, racemes, flowers - wonderfully uniform. The calyx is a darker

lower than the corolla.

On the westerly side of the cañon (Palo Prieto), ^{near slope}, I noted a colony of *Ribes* ^{*quercetorum* Greene.} The bushes are scattered, are plainly the same as *Ribes* no. 16,169, though I did not climb the hill to verify*. They seemed the last outcrops of a ^{woody} vegetation that we had been passing through, since north of this we saw no more of it and the hills became more and more barren of woody growth.

We run on southerly into Palo Prieto Pass and collect nos. 16,200 to 16,201. Grant Lake is full of water! We go on, and

* But the type of growth is unmistakable. Cf. p. 139, sub. no. 16,169

a short distance southward from the Choice Valley School turn off the main road into the hills between Choice Valley and the Carrizo Plain. These hills I am referring to as the Yeguas Hills. I take the name from Yeguas Peak and Yeguas Creek in the neighborhood. Shortly after getting into the hills, near Sumner ranch, on Bitterwater Creek, we collect no. 16.202 and no. 16.203. In the case of *Thelypodium lemmonii* (16.203), I previously noted some slight evidence of "bilabiation" in petal arrangement, but this is not always obvious. cf. p. 146 ante.

On the upper Bitterwater Creek, in the Yeguas Hills, *Amsinckia spectabilis* ^{*douglasiana*} forms very large and conspicuous sheets of color. None of it

than we have seen before. *Phacelia ciliata* continues to fill fields.

Perhaps the very conspicuous areas of *Amsinckia spectabilis**, visible from the Choice Valley School, on the shoulders and slopes of the Yeguas Hills (upper Bitterwater Creek) should be spoken of as burnt orange hills. ^{* = *A. douglasiana*}

Just over the first divide, as we go south from the Choice Valley School into the Yeguas Hills, that is on the watershed of Bitterwater Creek we find a large colony of *Thelypodium lemmonii* on a northwest slope. It is a typical colony, well defined, the plants standing thickly, so that the flowers give the area a distinctive look. With it was observed the same *Madia* as was associated with *Thelypodium lemmonii* in Palo Prieto Cañon (cf. no. 16.196; on p. 145). *Monolopia* here.

Near Sumners ranch, Bitterwater Creek, the S.E. slopes of the hills again tinted with *Thelypodium lemmonii*. Perhaps 500 acres of *Amorpha spectabilis** in these hills of the upper Bitterwater Creek. = *A. douglasiana*.

We travel on south through the Yeguas Hills and camp for the night of April 2, fairly early, and make our camp fire by scouring the plain carefully for ^{unwooded} firewood along a fence line. It is a remote ^{unwooded} spot. The grassy hills have not had cattle on them this season. Southward on the Carrizo plain we see a few scattered ranch houses - several miles apart. Over the Carrizo plain far southward, the mighty bulk of San Enigdio rises* to close

* It rises above the clouds lying at 2000 to 4000 ft.

the horizon in that direction, its northerly slopes covered with snow. Nearer at hand, to left is the Tumbler Range, to the right the blue heights of the Pozo Range. After a good dinner of chicken, carrots, peas, corn, ^{bread} cakes and fruit, we go to sleep under the stars as usual. It is a bitter cold night and our camp gear and bedding show white frost in the morning, and are quite wet with dew. Cont. p. 174.

- Cont. from p. 156 at middle. -
inflatus displaying extremely luxuriant plants; *Mertzelia gracilentia* T. & G., makes dark red spots of color; *Sphaeralcea* no. 16, 226 is abundant; and *Oenothera* no. 16, 228 adds to the coloring of the slope. It is a rich botanizing spot. *Monolopia* are here. *Thelypodium lasiophyllum* Greene. We continue up the gully mentioned

and soon come out on the Elkhorn Plain, over which we find conspicuously scattered *Erysimum* no. 16, 233. We run on down the plain, ^{of the Elkhorn} and turn up on the Tumbler Range. At the highest point a deep canon is under the road to our left, just before we begin to go down the east slope, affording by this hollow a free view easterly and southerly. *Mentzelia* no. 16, 229 colors the mountain slopes brick-red in the foreground. Our view embraces the upper Cuyama Valley, head of the San Joaquin plain, the snow slopes of Mt. San Emigdio, and also the Three Peaks of Tehachapi!

We run down the slope to Maricopa, take on gasoline, go on to Taft, thence to McKibrick, where in a brushy area ^{a little} north of east

of the town, off the Fresno road, we camp on a tiny flat by a small dry arroyo - and find the place a very happy choice. We collect here nos. 16, 234 to 16, 244.

We run north: Belridge; Blackwells Corner; Devils Den; ^{road sta.} Kettleman Plain. All through this country extensive areas of hills and fields have already turned brown. Not everywhere but rather generally.

We take on gasoline at Coalinga. Pick up the Mendota road. Two great mountains north of Coalinga are wonderfully flower-colored, the patterns being on a large scale, the whole accentuated by the canon sides of exposed chalk. On the great plain south of Mendota there is considerable *Atriplex* no. 16, 239.

- Cont. from p. 159 -

is typically of 5 stalks of flowers, one of the 5 central and erect. I find a large number with 5. I find others with 2 lateral.
Just

- Cont. from p. 171. Yeguas Hills.

On these grassy hills the main species now in flower are:

Lepidium nitidum, a dominant
Baeria

Erodium cicutarium

Amarckia douglasiana. See p. 168,
170.

Tropidocarpum gracile. Does not occur usually in the most sterile clays, but in medium clays it is frequent. It is all through this country. In rich spots it forms very rank colonies. See also p. 175.

Luzia platyglora, often forming sheets of color in this region.

- Cont. from p. 164 at middle.

Tropidocarpum gracile is here. I note three colonies forming exceedingly dense tangled beds 5 to 10 feet broad on rich spots, quite pure colonies.

- Cont. from p. 161, no. 16, 243. This seems to be the same as the plant collected on the 1927 trip in this general region and which I thought not described in the Manual. of
no. 12, 167.

- *Arbutus menziesii* Pursh. Nees says this is in the Yaca mts. He says, also, that *Arumone* is in Jales Cañon, which, I take it, must mean *A. quinquefolia* var. *gracilis* Jepson.

- Cont. from bottom p. 129. Bolsa de San Felipe, the Spanish Grant, is no. 231 of the list on the Mineralogical Map of Cal. State Mining Bureau. 1891.

- Dr. J. H. Kearney, U. S. Dept. Agr. Washington, D.C., just in. He says *Astragalus aguirreanus* Jepson is the abundant species on the sandy floors along the Colorado River on the Arizona shore near Yuma. He says also that *Artemisia Sonora* occurs in Arizona near Colorado River just this side of Mexican boundary. He finds it also at Grays Well, where it is barely coming into flower now.

Kearney referred to the unhappy state of the Greene Herbarium - its neglect by the men at Notre Dame University and the fact that so valuable an herbarium, one that is indispensable, should be in an inaccessible place and so not used as it otherwise would be. - Apr. 7, 1932

- *Sequoia gigantea*. There came in to the laboratory today a man who has developed an intense hobby for running down the location of various individuals of the Big Tree and to a less extent the Redwood. He has located the tree* which was cut down and taken for exhibition purposes to the worlds fair at Chicago in 1893. And so on. He has become quite an "Old Mortality" for running down these things. And is doubtless an eccentric and certainly a bore for long distance talking. His name is V. E. Beckwith, 4 mi. E. of Reedley. He says Frank Lewis, of Sanger, John Evans, Sanger, - Clark of Fresno (plumber), worked for the Sanger Lumber Co. and are well-informed about the Big Tree. - Apr. 21, 1932.

* Cut in Cowarse Basin. See over

Cont. from over. He spoke of the Methuselah Tree near Balch Park; also of the Centennial Tree, at Camp Lema, 24 ft. stump, a tree cut for the Centennial Exposition at Philadelphia in 1876.

- *Pyrus rivularis* Dougl. A ^{Dr. R.} verification of Kellogg's old time record of occurrence at Napa Soda Sprs. was given me by Susan Blake. Marginally noted in my copy (annotated) Fl. W. Mid. Cal.

- Went to day to Vaca Valley. Near Grison the low marsh flats were blue in spots with:

No. 16, 253. *Downingia pulchella*

Collected Apr. 19, 1932. It is notable that the flower characters hold as worked out in the Manual: the rotate calyx-lobes, the "throat" really absent from

corolla, the limb spreading at right angles to tube; the lower lip trefoil-shaped, the upper lip with divergent lobes.

- *Arbutus menziesii* Pursh. Trees on Bolinas Mt. and Indian legends of Orlando H. Bailey in litt. 5-11-05.

- Cont. from p. 123. *Calandrinia canescens* var. *menziesii* takes to cultivated areas at Hollister. If it be a native species it is one which is adaptable to changed conditions, especially those brought about by agriculture.

No. 16, 253a. *Vicia villosa* Roth.

A very distinct colony on the Devorton Road a mile east of Grison. Buds crimson!! turning dark purple or almost indigo in drying. Colony dense, 10 feet sq. May. 7, 1932.

- Left Berkeley at 9⁰⁰, drove to the Sacramento Valley, stopping at Susan to look at the colony of *Downingia pulchella* in the marsh by the town, its corolla "as flat as a plate". Thence to Woodland ^{limb} where a stop was made at the ^{Cal.} Auto Association office to get maps. The chap in charge, I discovered, did not know what the word "botany" means, but hazarded a guess that it had something to do with soils or rocks. Thence to Williams (where we took on gas and oil), thence west to the inner Coast Range on the road to Bartlett Sprs. We enter the cañon of the first range of hills (which are cleft east and west by cañons in a manner similar to the way in which the first range below the Vaca Mts. ridge is dissected). In this cañon of Freshwater Creek along its flats *Abrathus glandulosus* is a vigorous weed for several

miles in semi-wild country. We drove on up to Mountain House Road sta., which on the map has the name Vinado*. A mile above this is a small open valley, no ranches visible, I think, where we botanize, especially at the upper end, and collect the following numbers: (Valley above Vinado)
s.w. Colusa Co.
c. 900 ft.

- No. 16, 254. *Monolopia*
clay banks
- No. 16, 255. *Orthocarpus purpurascens* Bth.
- No. 16, 256. *Navaretia pubescens* H. & A.
- No. 16, 257. *Micropus californicus* D. & M.

This inuloid is frequent but not common or abundant. Clay soil.

- *Eriodictyon californicum* Greene.

- No. 16, 258. *Plagiobothrys fulvus*
Jtn. var. *campestris* Jtn.
- No. 16, 259. *Mimulus guttatus* Dc.

This is the variety that inhabits gravelly beds of water courses - with many large flowers and small plant body. Cont. p. 184.

* See p. 182.

No. 16,260. *Sidalcea diploscypha*
Gray. Dark or crimson eye to the pink
corolla.

No. 16,261. *Delphinium hesperium* Gray.

No. 16,262. *Allium*

Perianth pink, the tips of seg-
ments withering. connivent above ovary.
Clay banks, common at this locality.

No. 16,263. *Chorizanthe membranacea*
Bth. Steep sandy bank.

No. 16

— From bottom p. 181. X

Venado was once Mountain
House, and before that
Epperson(?) I take it, ^(not in p. 36) a
locality of Mrs. M. K. Curran.
I give the locality an altitude of
1300 to 1700 ft., as an estimate,
there being no contour map. — Later,
I revise my guess downward. See p. 181.

The road leads up a winding grade to
the summit of the range which lies
between Bear Valley (Leeville, where we
take our water) and the valley just above
Venado mentioned on p. 181. In this
range we collect:

No. 16,264. *L. densiflorus* var. *densiflorus*
Lupinus macrocarpus Sims.
var. ^{*densiflorus* Jepson} It is very abundant and always
on steep banks in clay soil; always in
colonies. The corolla is pure white,
the banner with a small central
yellow spot. Past anthesis the whole
corolla becomes sulphur-yellow and
coincident with this change of color
the flower whorls become secund.
At the same time that this is hap-
pening the raceme axis changes
from the strictly vertical to a
curved condition, the curve affecting
the maturing portion of the axis (the
flower whorls past anthesis!) while

the portion with flower-buds and fls. in anthesis remains vertical or nearly so. The lower portion of the raceme curves outward (i.e. down the hill always) and then upward.

- Altitudes, p.p. 182-199, are rough estimates.

- *Mimulus guttatus* DC. Cont. no. 16,259. It seems remarkable that with only 3 or 4 pair of small leaves, the plant should produce such a large area (so to speak) of flowers and stem.

- At the top of the ridge (see top. p. 183) we have a view of Bear Valley, and drive north, then directly west to Leaville, and on to the west side where we choose the directly north road (to Lodioga), instead of the south road to Bartlett sprs. We are soon in a valley with scattered and poorly developed *Quercus lobata*. The valley is Indian Valley*. It is a large valley, larger than I had expected to see in this region. On the summit of

* Colusa Co., not Lake Co.

the range east, the rounded hills are covered for many miles with a pure stand of *Adenostoma fasciculatum*, very smooth, even, uniform, unbroken. We collect the following now:

✓ No. 16,265. *Limnanthes alba* Hartw.

Cor. white, petals reflex. Plenty winter water courses, surface streamlets - still moist but without water.

✓ No. 16,266. *Agoseris heterophylla*
newly identified
mislabelled
15,266 This composite in a field.

✓ No. 16,267. *Ptilocarpus brevissimus* Nutt.

This inboid in low spots.

(W. Colusa Co.) Lodioga, May 8, 1932, c. 1500 ft.

✓ No. 16,268. *Veronica peregrina* L. var. *xalapensis* St. Y.

✓ No. 16,269. *Limnanthes bolanderi* Gray.

✓ No. 16,270. *Microseris Douglasii* Douglas

✓ No. 16,271. *Gilia gilvipes* Greene. * See p.

✓ No. 16,272. *Allium amplexans* Torr. det. G. S. G.

✓ No. 16,273. *Sanicula bipinnatifida* Dougl. Rocky hills.

✓ No. 16,274. *Sanicula tuberosa* Torr. Gravelly hills

✓ No. 16,275. *Ceanothus micrantha* H. & A. " "

✓ No. 16,276. *Gilia gracilis* Hook. Cor. pink.

✓ No. 16,277. *Achysanthes parvillus* Greene.

✓ No. 16,278. *Sidalcea hartwegii* Gray. Cor. pink, no

✓ No. 16,279. *Mertensia californica* T. & G. eye-spot.

✓ No. 16,280. *Lewisia rediviva* Pursh. Gravelly hills

We drive on to Lodioga, a mere road station and ranch. We had passed near the south end of the valley a road which came in from Maxwell in the Sacramento Valley. It looked like a wagon trail. At Lodioga a good road goes out to Sites (end of branch railway). Cross about Lodioga.

We drive west over a much-traveled road $\frac{1}{2}$ mile and camp in a Blue Oak grove on a mesa, a little above the flood plain valley floor, that is in the main covered with a pure stand of *Adenostoma fasciculatum*. The last time the fire went through this stand, say three ^(see p. 199) years ago, the *Arctostaphylos manzanita* was killed outright, to stark dark skeletons, a few, scattered here and there through the chamisal. The chameez, on the contrary, came back at once

and covers the area to a height of 4 to 6 feet. Plainly the chameez is dispossessing *A. manzanita* and is plainly encroaching on the *Quercus douglasii* woodland. All the marginal birch, birch standing on the edge of the chameez, are killed by the fire and the chameez consequently encroaches steadily.

Chameez Flat.

This is a fine camp spot that we have chosen and we enjoy it immensely. To the west is the long high ridge (with snow on it) of Snow Mt.; ^{n. and s.} dominating the skyline northward is the heavy mass of the very prominent peak Black Diamond, and, far behind, Mt. St. Johns with snow on it.

Incorrect: Goat Mt. = one with snow, Snow Mt. being behind and not visible from here. A prominent red rock rising up from the west floor of the valley is Gilmore Peak with "Baldy" in front of it. Mt. St. Johns is the very prominent Black Peak (not "Black Diamond") and Sheet Iron Mt. is the one "far behind" with snow on it. All this acc. to a settler near camp.

The next morning we drive northward, cross a divide and come into another valley, rolling more or less, and botanized along it until we came to Stonyford, a somewhat depressing old-time run-down and more or less slack village. From Stonyford we turn westerly on the main street on the road to Elk Creek, collecting along the way. We passed a very fine mountain stream in Indian Valley; at Stonyford we come to Stony Creek a much larger stream with a great deal of water in it. In Southern California a stream 40 yards wide would be called a river, perhaps three rivers!

— Near Stonyford I note:

Eriodictyon glutinosum Nutt.

Ceanothus cuneatus Nutt.

Aesculus californica Spach.

Quercus lobata Nutt.

Populus fremontii, a lot of it in the bottoms.

We collect at intervals. On a rotten shale bank, sliding fine shales, we note a colony of scattered plants of *Mirabilis greenii*: involucre 5-cleft, its flowers several (2, 10, 8, 8); stamens 5, free, glabrous; style glabrous (no. 16. 299).

Stonyford, w. Colusa Co. c. 1200 ft. (c. 6 p. 184).

- No. 16. 281. *Lomatium vaseyi* C. & R.
 No. 16. 282. *Orthocarpus purpurascens* Bth.
 No. 16. 283. *Lasthenia glabrata*
 No. 16. 284. *Orthocarpus lithospermoides* Bth. var. *umbellulatus*. Cor. white, sometimes turning pink.
 No. 16. 285. *Achnopachena mollis*. See p. 200.
 No. 16. 286. *Agoseris heterophylla*
 No. 16. 287. *Antillarum*
 No. 16. 288. *Hordeum brachyantherum* Nevski (det. B. Crampton 3/76)
 Grass in moist mds.
 No. 16. 289. *Bromus mollis* L. (det. B. Crampton, 3/76)
 Grass in moist mds.
 No. 16. 290. *Festuca reflexa* Buckl. (det. B. Crampton 3/76)
 W. Colusa Co. Stonyford, w. of c. 1200 ft.
 No. 16. 291. *Cryptantha intermedia* Greene.
 No. 16. 292. *Malacothrix floccifera*
 Sliding rotting shale. Cichoriad.
 No. 16. 293. *Lythia helenioides* (DC.) Nutt.
 No. 16. 294. *Stemotus linearifolius*
 Only one loc. noticed on trip.
 No. 16. 295. *Rhus trilobata*
 No. 16. 296. *Phacelia caryocosa* (Gray). Tab. 59.
 No. 16. 297. *Clarkia gracilis* ssp. *pubescens*
 Cor. pink; crimson spot at base of petals; mds. nodding.
 No. 16. 298. *Juniperus californica* Wats. See p. 195.
 No. 16. 299. *Mirabilis greenii* Wats. sliding rotten shale. See p. 199 at * *.

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(Rockville 12 mi. n. of Stonyford, w. Colusa Co.)

- no. 16.300. *Logiopappus*
dry open oak flats. Rays 5.
- no. 16.301. *Melica californica* Scribn. (Det. B. Crampton, 1932)
- no. 16.302. *Pentstemon clustranthifolius*
Bth. dry openly wooded bank on edge of bluff.
- no. 16.303. *Linanthus ciliatus* Greene.
- no. 16.304. *Rigiodappus* Sterile barren
clays.
- no. 16.305. *Lagophylla* (see p. 199) " " " "
- no. 16.306. *Wyethia* (see p. 199) " " " "
- no. 16.307. *Louatiun* (see p. 199); on sterile clays.

- Elk Creek is a hamlet near the Stony-
ford Dam. It has two country stores,
a school and so on. We take on
gas here and then discover that
the starter will not work on the
engine. There is from here a road
directly out to willows. We cross Stony
Creek which continues to run northerly;
we pass the hamlet of Winslow within
a few hundred yards and
climb to the top of the range
of hills that separates us from the
Sacramento Valley. We run down the
other (east slope), within a mile
(left hand side) parsing a spontaneous colony of
Ailanthus glandulosa in the hills,

on down four or five miles or less to Fruto,
end of a branch railway line, a mere
hamlet. From here to the edge of the plain
of the Sacramento Valley are bold barren
hills, with no trees save along the
water courses in the narrow valley flats. We
return from willows the way we went, pick
up our "trail" at Winslow and go northerly
still. Millsaps (Chromosome of some maps) is
no more than a country store, a school
and a house or two. Just before we
reach Millsaps, say four miles or much
less I think, we passed a little school.
It was interesting as having a cottage
for the teacher in the school grounds.
I had the curiosity to look into
the school room which was quite
accessible but everything in neat order.
There were desks for six pupils.
We drove on from Millsaps to New-
ville, perhaps a dozen houses. There
is from here a road out east to Orland.

Before reaching Neville, from the hillside road we had fine views over the great basin we were in, - the Coast Range west, the low but ^{high inner} distinct and continuous range of hills on the east side. Particularly at the north end of the basin, the area is closed by a threequarters circle of hills continuous with the outer range of hills before mentioned. ^{to east} So there is here a circular flat bowl, that is a shallow bowl with its bottom undulated by low hills and stream courses.

- Cont. from p. 192 near top.

At about $\frac{1}{2}$ miles ^{range of} from the fine stream of Story Creek breaks east through the hills to the Sacramento Valley. Close by is the junction of Grindstone Creek, a fine large stream coming in from the west. Near the junction we stop and collect the

following numbers:

No. 16, 308. *Baccharis viminea* DC.

In stream bed, Grindstone Creek.

No. 16, 309. *Cercis occidentalis* Torr.
Stream border, bottom of Grindstone Creek.

No. 16, 310. *Vitis californica* Bth. Climbing trees, borders of Grindstone Creek.

No. 16, 311. *Mentzelia laevicaulis*

J. & G. Seedlings or first year

plants; second year plants developing ^{↑ conspicuous basal} rosettes and thus preparing for the shoot or flowering phase. When that phase comes the basal rosettes will have passed chiefly. "Stream bed" of Grindstone Creek.

No. 16, 312. *Cirsium*

Heads crimson - very showy plant 4 ft.

h., 6 ft. broad, widely branching from the base.

No. 16, 312a. *Lupinus densiflorus* var. *aureus*
Cor. white. Apparently same sp. as no. 16, 264 but cor. not turning yellow. Expansive dense colony on steep bluff of second bench of flood stream at camp place, see p. 194.
- 9 May -

- About 2 miles beyond Newville, we turn into an abandoned road and camp on the bank of a ^{W. Glenn Co.} small water course, ^{in Tehama Co. here} no water now. Here is a circle of ten *Populus Fremontii* trees large old ones. The climate is full of birds: flycatchers, ^(King Birds), orioles and towhees, the first two very noisy, the last with its intermittent call, its low hollow moaning whistle. This camp spot is in agricultural country, mainly grazing, with scattered ranches. A ranch with all its buildings and farmyard activities, cawing chickens and bark of dogs, is within one-third mile. All the way through this series of valleys, since Arunado, one out of three, or two out of four ranches are abandoned - often with well-improved buildings.

- *Chenopodium californicum*. Newville.

In the region of Newville the foothill range to the east becomes more and more markedly serrated as we go north. These foothill ranges are much like those of the Sierra Nevada.

- *Calochortis luteus* is common on the gravelly flats about Millsaps and indeed all through this region that we have been in.

- Cont. from p. 189. no. 16,298. Branching and spreading widely on ground, also with ascending and erect branches. That is to say it is several-stemmed from the base 10 to 12 feet high and as broad.

- *Pentstemon centranthifolius* is abundant in the bed of Stony Creek near Briscoe Creek. This is in Glenn Co., about 18 mi. n. of Rockville, just north of Stony Jorge Reservoir.

The next morning, after camping at the creek of ten cottonwoods (cf. p. 194 ante) we go on two or three miles to a ranch where we go in to get water for the engine. We ask the woman the name of the little valley in which she lives, but she says it has no name - just "the foothills of Tehama Co." We go on and soon join the road which comes from over the main range (from Corvallis) to Red Bluff. We travel on it north-easterly and stop for a few minutes to enjoy a wooded vale of oaks with a fine stream 40 ft. wide running down it. Thence into Packenta, an old village.

Instead of taking the road to Red Bluff via Kenleyville, we turn north just outside the village a mile and run northerly through hills. In about a mile or mile and a half we stop to botanize a hill slope that does not look especially promising but yields the following numbers. While I am botanizing the others of my party change drivers on the plant presses. (cf. p. 199)*

✓ No. 16.313. *Stylocline filaginea* Gray
This herboid plant grew on an adobe slide in a gully.

✓ No. 16.314. *Cryptantha rostellata* Greene.

✓ No. 16.315. *Boncalis* = *Isilis nodosa* Gaertn. Shade of willow trees in gully.

✓ No. 16.316. ~~*Artemisia*~~ ^{*Tritelia*} *laxa* (Bth.) ~~Wats.~~
Adobe hill slope.

✓ No. 16.317. *Cryptantha intermedia* Greene.

✓ No. 16.318. *Micropis californicus* F. + M.

✓ No. 16.319. *Rigiopappus*

✓ No. 16.320. ~~*Gadetha*~~ ^{*Clarkia*} *cylindrica* var. *tracyi* Jeps.

✓ No. 16.321. *Microseris douglasii* Douglasii

✓ No. 16.322. *Allium*
Per. crimson.

We run on and stop again; go across a shallow gully (on foot) and up a ^{n.} sloping hill which yields a number of species.

It is a very steep clay slope, with tendency to slide. Mostly on slipped ground I get the following:

✓ No. 16.323. *Androsace occidentalis*
var. *acuta* Jepson.

✓ No. 16.324. *Gadetha cylindrica* Hek. var. *tracyi* Jeps. Every size of cor. down to the small-sized forms. Hill slope, rather steep. Corolla pink, fading purplish.

* cf. p. 184.

- no. 16. 325. *Trifolium variegatum* Nutt.
in "creek" bottom
- no. 16. 326. *Sisymbrium officinale* Scop.
- no. 16. 327. *Thysanocarpus curvipes* Hook.
- no. 16. 328. *Gaytonia spatulata* Dougl. s.l.
~~Hookia~~
steep hillslope. leaves cylindric, fleshy.
- no. 16. 329. ^{*Microseris*} *Gilia gracilis* Hook.
This polemonioid grew on a steep bank.
- no. 16. 330. *Amorpha*
- no. 16. 331. *Lomatium carniifolium*
umbellifer. = *L. marginatum* C. & R. C. & R.

- We run on through the hills and pass Lowrey, a hamlet of three cottages or maybe four. We are now on the watershed of Elder Creek, we continue northerly, climb the dividing range of hills and ^{are} on the headwaters of a branch of Red Bank Creek running directly ^{southerly} over the rolling country east to the Sacramento River.

[This trip continued in vol. 53.]

- Cont from p. 189 at *. Involucres 5-cleft, its fls. 10, 7, 8, 8. Stamens 5, free, glabrous. Style glabrous.*
- Cont from p. 190, no. 16. 307. This is so different from *Lomatium laevis* (S. & G.) that I take it to be a good natural type of *L. tomentosum* (S. & G.) C. & R.
- Cont. from p. 185. no. 16. 271. *Gilia giloides* Greene var. *caerulea* Jepson & Hoover.
- Cont. from p. 196*. In the center of a field on a prominent hill top is a great scarecrow - a striking one. It is a lovely region of grazing. To frighten coyotes?
- Cont. from *** p. 191. This country in the rolling foothills about Fruto has a lot of magpies - more than I recall elsewhere.
- Cont. from p. 186. We learn from a settler that the fire was in 1928. in the summer.

* *Mirabilis grisea* Wats. Perhaps 18 plants scattered over this shale slide. The plants branch diffusely with spreading and ascending branches.

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- Cont. from p. 190. no. 16,306. This together and nos 16,300 to 16,305 were collected 11 mi. n. of Stonyford, that is about 5.5 mi. n. of Rockville.
- Cont. from p. 189. no. 16,285. This species is abundant through all this country. It forms colonies of 10, 20, 30 acres, especially in swales of the hills or on low flats. At a little distance one has the impression of a field full of white flowers. This region would appear to represent its center of distribution at the present time. I have never before seen it in such solid colonies. It is all through this series of inner Coast Range foothill valleys. Also at Frito it colored the landscape in great areas for miles. Doubtless it was once as abundant in the Sacramento valley.

Field Memoranda.

- "Tallest tree in the world" Bull Creek grove just w. of Ogenville, "363 ft. h." - diam 16 ft. - See Bee, - 12-24-1930. Letter of Geo. W. Stewart, Jan. 17, 1931.
- Local details of associations at Morongo should be worked up; also Redwood Ridge.
- Camp shot on Mt. Pinco, elev. 8000 ft., amongst pines and firs.
- See Avery Brook, esp. Lassen Co. as to *Astragalus*.
- Foster, native and tree sharp, at Tahoe, s. side of Lake Tahoe. Name given me by Dr. A. M. Carpenter. 1932
- Hutchins Oak, Gridley, 126 ft. h., 36 ft 3 in. circ.
- Hanna oak, 3 1/2 mi. w. of Gridley on Butte Vista Creek.
- *Aneides chrysolepis* marked frog. (Cal. Acad. 4: 67).
- College City. How comes it that on the plain of the Sacramento above King's Gate *Rhamnus* (leucifolia), *Adenostoma fasciculatum*, etc?
- *Eulophus pringlei*. Needed in fruit. Chalcum Hill, San Luis Obispo Co. Miteloke Valley, Acton, Harold - perhaps June or July.
- *Leptostemonia anomala* (Conardale + Anderson) and *L. humilis* (Clivio planis).

